

Minds @ Work



Celebrating Student Research, Scholarship, and Creativity

April 21, 2015



Schedule of Events

April 21, 2015

	MPR	PRESIDENT'S HALL HONORS SEMINAR ROOM	ORNDORFF THEATER	MPR A	103	104	105
2:00		Honors Symposium	History Dept. Panel				
2:30		Business 2:00-2:45 PM	Re-thinking the Divine in Ancient Mediterranean 2:00-3:15 PM				
2:45							
3:00							
3:15							
3:30	POSTER SESSION 1 3:30-5:00 PM	Honors Symposium	Honors Symposium	Human Communication Dept. Panel	International Studies Panel	English Student Presentation Lost Souls in the City 3:30-4:45 PM	Modern Language Dept. Panel A Conversation on Haiti 3:30-5:00 PM
3:45		Social Sciences & Humanities I 3:30- 4:30 PM	Natural Sciences I 3:30-4:30 PM	Health & Communication Competence: 3:30-4:30 PM	Pot, Penicillin, and the Pill: A Global View of Drugs 3:30-4:30 PM		
4:00							
4:15							
4:30				Human Communication Dept. Panel			
4:45							
5:00	POSTER REMOVAL / SETUP	Honors Symposium	Honors Symposium	Exploring Humor & Romantic Relationships: 4:30-5:30 PM	Political Science Dept. Panel Violence and Hope in World Politics 5:00-7:00 PM	English Panel	
5:15		Social Sciences & Humanities II 5:00-6:15 PM	Business, Computer Science, & Criminal Justice 5:00-6:00 PM			Poetry: The Music of the Line 5:00-6:00 PM	Graduate & Undergraduate Student Orals Communication/Journalism, Modern Languages, English 5:30-7:00 PM
5:30				Human Communication Dept. Panel			
5:45				Identity and Self-Disclosure: 5:30-6:30 PM		English Panel	
6:00	POSTER SESSION 2 6:00-7:30 PM					Poetry: The Art of Description 6:00-7:00 PM	
6:15							
6:30		Honors Symposium	Honors Symposium	Human Communication Dept. Panel			
6:45		Reach Out 6:30-7:30 PM	Natural Sciences II 6:30-7:45 PM	Deception and Decisions: 6:30-7:30 PM			
7:00							
7:15						English Panel	
7:30						"Write the Ship" Editor's Choice Awards 7:00-8:30 PM	
7:45							
8:00							
8:15							
8:30							

Schedule of Events

April 21, 2015

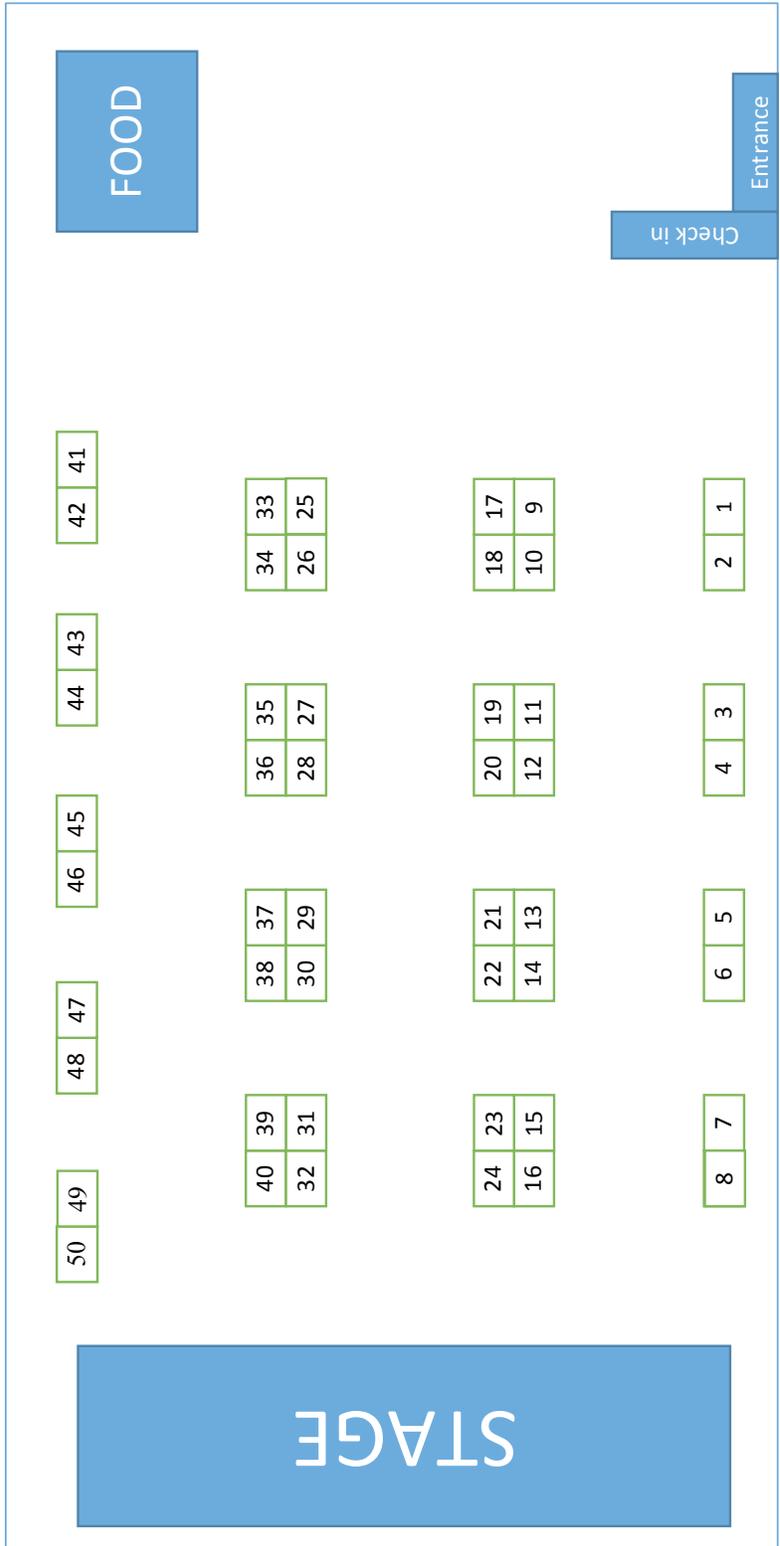
	119	226	232	239
2:00				
2:30				
2:45				
3:00				
3:15				
3:30	Biology Dept. Panel Undergraduate Research in Biology 3:30-5:45 PM	Disability Minor Panel Exploring Issues of Women with Disabilities 3:30-5:00 PM	Finance Student Presentation Investment Management Portfolio 3:30-5:00 PM	Exercise Science Dept. Panel Research Applications in Exercise Science 3:30-4:30 PM
3:45				
4:00				
4:15				
4:30				
4:45				
5:00				
5:15				
5:30				
5:45				
6:00	Biology Dept. Graduate Panel Ecology & Natural History of the Central Appalachian & Mid-Atlantic Coastal Regions 6:00-8:30 PM	Chemistry Dept. Panel Undergraduate Research Projects in Chemistry 5:30-8:00 PM	Graduate & Undergraduate Student Orals Computer Science/Physics 6:00-7:00 PM	Graduate & Undergraduate Student Orals History 5:30-7:00 PM
6:15				
6:30				
6:45				
7:00				
7:15				
7:30				
7:45				
8:00				
8:15				
8:30				

Poster Session I Map

3:30 – 5:00 PM CUB Multi-Purpose Room

Posters begin on page 25

Minds@Work Poster Session I Map 3:30 – 5:00 PM CUB Multi-Purpose Room



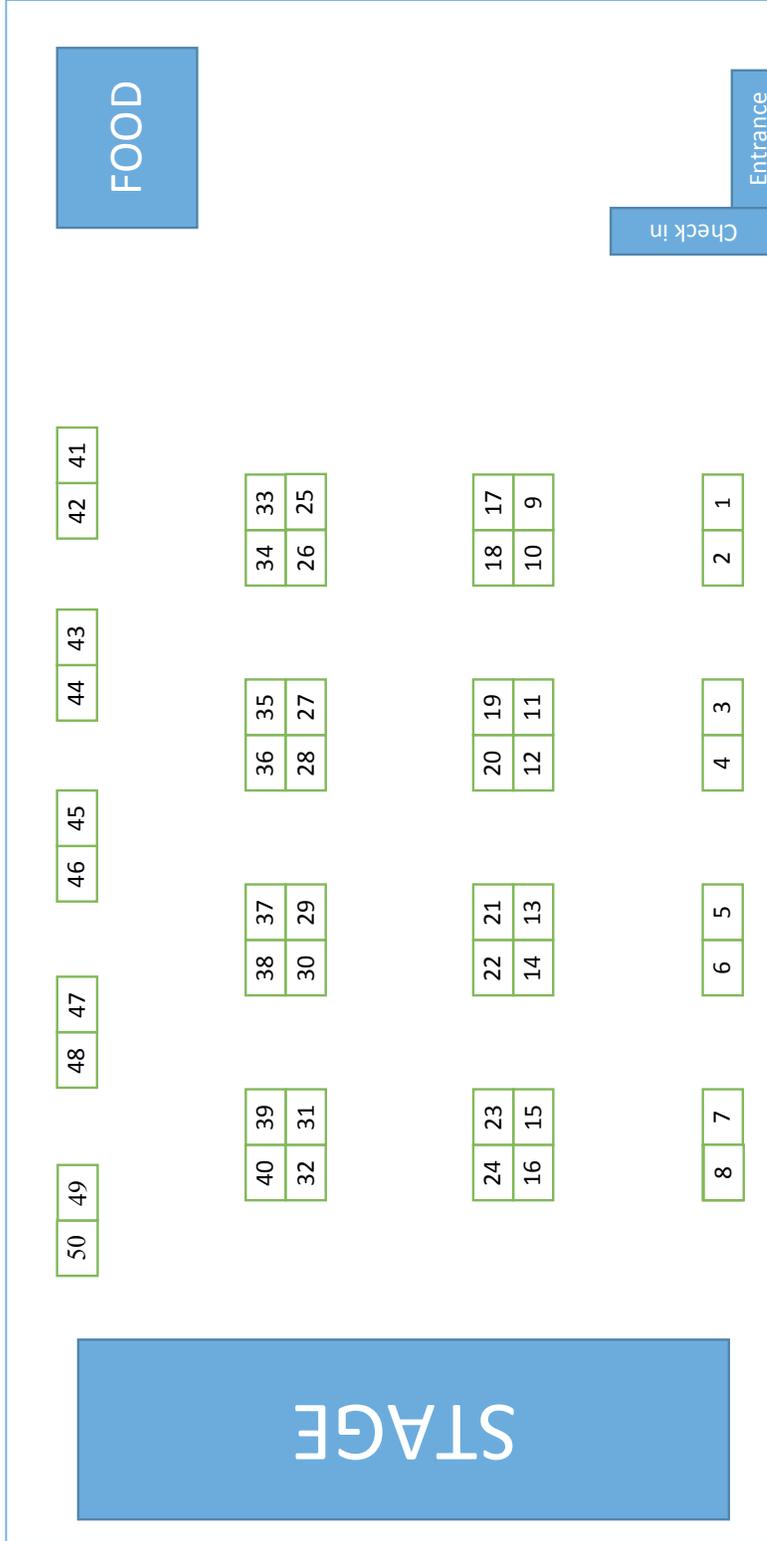
Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
1. Political Science 2. Modern Languages 3. Math 4. Math 5. Math 6. Math 7. Economics 8. Economics	9. Chemistry 10. Chemistry 11. Chemistry 12. Exercise Science 13. Exercise Science 14. Exercise Science 15. Exercise Science 16. Exercise Science	17. Biology 18. Biology 19. Biology 20. Biology 21. Biology 22. Biology 23. Biology 24. Biology	25. Biology 26. Biology 27. Biology 28. Comm/Journ 29. Comm/Journ 30. Comm/Journ 31. Comm/Journ 32. Comm/Journ	33. Physics 34. English 35. History 36. History 37. History 38. Geo/Earth Sci 39. Geo/Earth Sci 40. Geo/Earth Sci	41. Mgt/Mkt 42. Mgt/Mkt 43. Geo/Earth Sci 44. Geo/Earth Sci 45. Geo/Earth Sci 46. Geo/Earth Sci 47. Geo/Earth Sci 48. Geo/Earth Sci 49. Counseling 50. Counseling

Poster Session II Map

6:00 – 7:30 PM CUB Multi-Purpose Room

Posters begin on page 35

Minds@Work Poster Session 2 Map 6:00 – 7:30 PM CUB Multi-Purpose Room



Row 1	Row 2	Row 3	Row 4	Row 5	Row 6
1. Exercise Science 2. Exercise Science 3. Exercise Science 4. Academic Success Pro 5. Social Work 6. Computer Science 7. Computer Science 8. Computer Science	9. Geo/Earth Sci 10. Geo/Earth Sci 11. Geo/Earth Sci 12. Geo/Earth Sci 13. Geo/Earth Sci 14. Geo/Earth Sci 15. Geo/Earth Sci 16. Geo/Earth Sci	17. Geo/Earth Sci 18. Geo/Earth Sci 19. Geo/Earth Sci 20. Geo/Earth Sci 21. Geo/Earth Sci 22. Geo/Earth Sci 23. Geo/Earth Sci 24. Geo/Earth Sci	25. Geo/Earth Sci 26. Counseling 27. Counseling 28. Counseling 29. Criminal Justice 30. Criminal Justice 31. History 32. Mgt/Mkt	33. Psychology 34. Psychology 35. Psychology 36. Psychology 37. Psychology 38. Psychology 39. Edu. Leadership 40. Edu. Leadership	41. Psychology 42. Biology 43. Biology 44. Biology 45. Teacher Education 46. Teacher Education 47. Comm/Journ 48. Comm/Journ 49. Comm/Journ 50. Comm/Journ

Keynote Address

“Black Holes: *Songs from Space*”

Janna Levin, Cosmologist and Author

Wednesday, April 22, 7:30 PM

Luhrs Performing Arts Center

JANNA LEVIN is changing the way we understand the cosmos. She brings originality, lucidity—and even poetry—to one of humanity’s oldest sciences. On stage, Levin expands on her mind-bending yet concrete ideas. From black holes to creativity, to the union of art and science, she shows audiences just how far science has come—and where it’s headed.

Levin is a gifted young cosmologist whose debut book, *How the Universe Got Its Spots*, fuses geometry, topology, chaos, and string theory to show how the pattern of hot and cold spots left over from the big bang may one day help reveal the true size and shape of the universe. Meanwhile her latest book, *A Madman Dreams of Turing Machines*, bridges fiction and nonfiction to tell a strange story of coded secrets, psychotic delusions, mathematical truth, and age-old lies. She re-opens the long dormant questions we all have about the nature of reality and makes cutting edge science accessible to anyone willing to expand their mind.

A professor of physics and astronomy at Barnard College of Columbia University, Levin was named a Guggenheim Fellow in 2012. Her scientific research concerns the early universe, chaos, and black holes. Her book *A Madman Dreams of Turing Machines* won the PEN/Bingham Fellowship for Writers which “honors an exceptionally talented fiction writer whose debut work ... represents distinguished literary achievement.” It also was a runner-up for the PEN/Hemingway award for “a distinguished book of first fiction.”



Levin has worked at the Center for Particle Astrophysics (CfPA) at UC Berkeley, the Department of Applied Mathematics and Theoretical Physics (DAMTP) at Cambridge University, and the Ruskin School of Fine Art and Drawing at Oxford University, where she won an award from the National Endowment for Science, Technology, and Arts. Levin holds a BA in physics and astronomy from Barnard College with a concentration in philosophy, and a PhD from MIT in physics.

Table of Contents

Schedule of Events	ii	Poster Session I	27
Poster Session I Map	iv	Biology	28
Poster Session II Map	v	Chemistry	30
Keynote Address	vi	Communication/Journalism	30
Undergraduate Research Grant Recipients 2014-2015	6	Economics	31
Graduate Research Grant Recipients 2014-2015	7	English.....	32
Ezra Lehman Memorial Library Research		Exercise Science.....	32
Award 2014-2015	7	Geography/Earth Science.....	33
Celebrating the Written Word	7	History/Philosophy	34
Departmental Conference Panels	9	Management/Marketing.....	35
Biology	10	Mathematics	35
Chemistry.....	12	Modern Languages.....	36
Disability Studies Minor	12	Political Science	37
English.....	13	Physics	37
Exercise Science.....	13	Poster Session II.....	39
Finance	14	Academic Services	40
History.....	14	Biology	40
Human Communication Studies.....	14	Communication/Journalism	40
International Studies.....	15	Computer Science.....	41
Modern Languages.....	15	Counseling and College Student Personnel.....	42
Political Science	16	Criminal Justice	42
Honors Symposium.....	17	Education Leadership and Special Education	43
Business	18	Exercise Science.....	43
Business, Computer Science, and Criminal Justice.....	18	Geography/Earth Science.....	44
Natural Sciences I.....	19	History/Philosophy	47
Natural Sciences II.....	19	Management/Marketing	48
Reach Out	20	Psychology	48
Social Sciences and Humanities I.....	20	Social Work/Gerontology.....	49
Social Sciences and Humanities II.....	21	Teacher Education	49
Individual Oral Presentations	23	Index.....	51
Communication/Journalism, Modern Languages,			
English	24		
Computer Science and Physics	24		
History.....	25		



From the President

Welcome to Shippensburg University's 2015 Minds@Work Conference, Celebrating Student Research, Scholarship, and Creativity. This annual program is a highlight of the year and showcases student-faculty research, which has become a key component of our academic programming across all disciplines.

From the sciences and humanities, to business, creative arts, and human services, our students, both undergraduate and graduate, will present their activities through posters, oral presentations, panel discussions, and works of art.

Throughout the year, we challenge these students to dig deeper into subjects that interest them, to create original work, and to work alongside faculty on research and other scholarly activities. I enjoy not only seeing the work that they've accomplished, but even more the excitement, energy, and enthusiasm they display as they share their work. This is at the heart of what learning is about: discovering, comprehending, and interpreting the world around us and ourselves.

Shippensburg University has made significant investment into joint student-faculty research and other high-impact learning experiences because we know that the benefits reach far beyond our campus. Many of our students present results at regional and national conferences. They become highly qualified graduates capable of meaningful contributions to their employers, their graduate studies, and their communities.

This celebration may be the culmination of a year or more of work, but for many it is just the beginning of a lifetime of learning. I encourage these students to continue to explore, discover, create, and share. The world is waiting for your bright minds at work.

G.F. "Jody" Harpster, PhD
President



From the Provost and Senior Vice President for Academic Affairs

When students choose The Ship as the vessel to transport them during their quest for a high quality education, they make an excellent decision. There is no better display of the quality and value of a Shippensburg University education than the annual Minds@Work Conference! Regardless of the academic program, there are opportunities to engage in the intel-

lectual and experiential adventure of student research and/or creative activities guided by faculty.

Joint faculty-student research builds student capacity for the long term and imparts benefits in the near term. Engagement in research reinforces a questioning attitude which is singularly important to making advances in identifying, defining, evaluating, and addressing unknowns and unresolved issues within and across many contexts. The habits of mind associated with scholarly inquiry and creative exploration also reinforce the notion that absolute generalizations hold far less often than may be commonly believed. These dispositional and intellectual benefits are associated with individuals' greater capacity for critical thinking and problem solving, useful not only in academic domains but in the world at large and over a lifetime.

With respect to near term benefits, when students pursue their research projects and creative productions, they enhance abilities in such areas as design thinking, project management, advocacy, and negotiation as well as public presentation skills. These capacities, amplified through the student research experience, mean that Shippensburg University students emerge among the most highly qualified when they pursue studies in master's, doctoral, and a variety of advanced professional degree programs. Ship students also emerge among the most sought after by employers who welcome the enhanced suite of skills and dispositions that they bring to the table as a result of the high impact experience of student research.

I hope that students will compare notes with their peers at public and other institutions of higher education. When they do they will find that the joint faculty-student research program at Shippensburg University is a premier program of scope and quality not readily found elsewhere!

My deepest congratulations to the students, appreciation to the faculty, thanks to the staff, and gratitude to our donors for another successful Shippensburg University Minds@Work Conference!

Barbara G. Lyman, PhD
Provost and Senior Vice President for Academic Affairs



*From the Associate
Provost and Dean of
Graduate Studies*

This year's Minds@Work conference is an excellent showcase for the talents and diligence of Shippensburg University's graduate student researchers. I am proud to play a role in supporting the independent endeavors of these individuals, many of whom are working professionals already balancing the demands of work, family, and academics.

The graduate research projects included in this program address complex questions that engage the higher order thinking skills of master's students. The conference serves as a venue for our students to demonstrate the mastery learning they have achieved.

What separates master's degree level work from that of an undergraduate student? While there are certainly more than a few distinguishing features, one in particular is the depth of exploration into a given discipline. By their nature, master's programs include a project that integrates the deeper knowledge and skills that have been obtained since the bachelor's degree. It is critical that the student's process of synthesizing and building new knowledge culminate in the presentation of what has been learned and what questions remain to be answered. Graduate students appreciate being able to present their research at the Minds@Work conference, thus allowing them to practice their discipline-specific communication skills.

It is an interesting fact to note that some of this year's graduate research projects are done in collaboration with undergraduate students. In the spirit that is the Ship community, this synergy is enriching for all who are involved. We must recognize that this kind of collaboration is something that would likely not occur at a larger research institution. For those graduate students who are collaborating with undergraduate students, they are gaining a powerful, real-life experience of working with colleagues of diverse interests and varying degrees of knowledge. This experience will be valuable years after the project concludes.

For all of these reasons, the Graduate School is pleased to have the work of our master's students showcased in the Minds@Work conference.

Tracy A. Schoolcraft, PhD
Associate Provost and Dean of Graduate Studies



*From the Dean, College
of Arts and Sciences*

Meaningful and deep engagement between students and faculty is one of the distinguishing strengths of the College of Arts and Sciences. One of the highest-impact types of engagement for students is working under the mentorship of a faculty member on an undergraduate research project, scholarly activity, or creative endeavor. Through participation in undergraduate research, scholarship, and creative activities, students and faculty work together to expand the boundaries of human knowledge and experience. Students make their own unique contributions to their disciplines and often experience intense personal growth by their participation. Through their projects, students learn to work collaboratively and gain important skills in writing, problem solving, and communication. They also develop distinct insights into the power of guided inquiry and design thinking. The College of Arts and Sciences continues its exploration of the possibilities presented by deep engagement in undergraduate research, scholarship, and creative activities. The Dean of Arts and Sciences' Advisory Council for Undergraduate Research, Scholarship and Creative Activities (URSCA) continues its task of posing questions, seeking answers, providing a forum for meaningful dialog, and proposing innovative ways for faculty members to make these activities a part of our students' learning experiences. Maintaining curricular relevance and fostering an understanding and mutual respect for disciplinary differences has been among their many activities. We look forward to continued engagement in undergraduate research, scholarship, and creative activities, and to continually improving the educational experiences of our students in the College of Arts and Sciences at Shippensburg University.

James H. Mike, PhD
Dean, College of Arts and Sciences

From the Dean, College of Education and Human Services



Every college and university hopes to offer its students a "signature experience." At Shippensburg University, one of those signature experiences is the Minds@Work Conference.

Whether through poster or oral paper presentation, our students are excited at the prospect of genuine participation in a formal, professional conference setting. Faculty members across the College of Education and Human Services fully appreciate and recognize that participation in a research project, often working closely with fellow students and a faculty mentor, contributes to our students' long-term growth as professionals in the fields they seek to join. The research experience channels students' intellectual development, creativity, problem-solving ability, and confidence in unique ways unable to be achieved in the regular classroom. Most importantly, the research experience moves our students a giant step forward on their long-term development as professionals, life-long learners, and future leaders in our society.

James Johnson, PhD
Dean, College of Education and Human Services



From the Dean, John L. Grove College of Business

Shippensburg University is the hallmark of quality in providing academic programs at an incredible value. The John L. Grove College of Business has a long history of providing high quality and high value comprehensive business educational experience necessary in preparing students to excel as principled leaders in today's global business community.

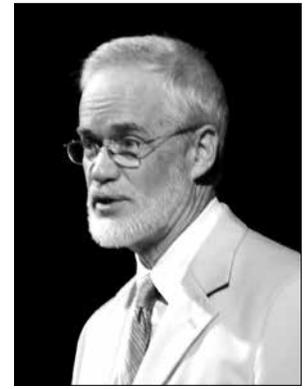
Delivering high quality business programs require active faculty/student collaborations in all aspects of learning, in the classroom and outside of the classroom. The joint student/faculty research is a shining example of faculty/student collaborations and illustrates Shippensburg University's commitment to deliver high quality programs and developing students' critical thinking, problem-solving, analytical, and communication skills. At Ship, the faculty continue to collaborate closely with students in conducting numerous and varied joint research projects. These projects further benefit students in that they incorporate interaction with experts in the field through presentation and panel discussion at academic conferences, and peer-reviewed journal articles. Finally, these scholarship and research experiences foster intellectual development and help to prepare students to become lifelong learners committed to serving society and their profession.

The John L. Grove College of Business is committed to excellence in teaching and high standards of intellectual contribution by providing faculty professional development and support to joint student/faculty research initiatives. As the John L. Grove College of Business continues to build programs, student experiential learning will continue to be the central focus of our strategic planning.

John G. Kooti, PhD
Dean, John L. Grove College of Business

On Behalf of Faculty

Shippensburg University has a well-deserved reputation for its innovative approach to undergraduate research which engages students in high impact learning experiences. In particular, the student-faculty research initiative has demonstrated the efficacy of academic mentoring within the context of a shared intellectual endeavor. Many faculty, across many departments, have repeatedly shared their expertise with their students by partnering on research projects.



Clearly, these are win-win opportunities, in that both faculty and students are energized and enriched by their interactions on joint research agendas. Faculty are to be commended for their willingness to provide the necessary structure, guidance, and support to ensure a meaningful research experience for students. And students deserve praise as well for pursuing significant academic assignments which are above and beyond their typical class-based experience.

Such sustained and intense learning experiences have been shown to have long-term impacts by encouraging students to be yet more academically ambitious due to their enhanced intellectual self-confidence. Encouraging students to dream and helping them realize their dreams is part of the Ship magic, and the undergraduate research program contributes significantly to making the magic reality.

Brendan P. Finucane, PhD
*Economics Department
APSCUF-SU President*

Advisory Council for Undergraduate Research, Scholarship, and Creative Activities



Aargh! As I write this, I'm a bit frustrated. My own, professional research centers around a famous sequence of numbers called the Fibonacci sequence, and I'm trying to explain why certain patterns I've discovered in that sequence occur. As far as I know, nobody else in the world has ever offered an explanation for these patterns, so I could be the first—if I can solve my problem. Which I can't. And it's really starting to irritate me.

Why do I keep at it when it aggravates me so? Honestly, there are times when I don't keep at it, when I don't feel like I'm making progress, and when other commitments pull me away from research. But I've found that just often enough I make a tiny bit of progress, I solve a simpler, related problem, my hope is reignited, and I can't help but try again.

Our world is full of entertainment and distraction. If you want to be entertained, you can probably reach into your pocket right now and pull out a device that will deliver countless games, movies, and cat videos. Research is not entertaining, and it is often frustrating. However—and here's the big idea—there are few feelings that compare to when you solve a problem that you've been wrestling with for months—when that muddy idea that's kept you awake at night finally succumbs to

your pursuit and you understand fully the problem, its solution, and its relation to similar problems. The research itself can be a struggle—it is neither an entertainment or a distraction—but the reward is extremely gratifying.

I love this conference because I get to see how other people have struggled and persevered. I get to see how people have taken questions without clear answers, and they have worked until answers were found. I love to see the creative process in action—for these problems can be solved only with creativity.

Thank you to the members of the Dean of Arts and Sciences' Advisory Council for Undergraduate Research, Scholarship, and Creative Activities, all of whom helped make this conference happen. Thank you to all the wonderful folks in the Institute for Public Service and Sponsored Programs, the Dean's Office, and the Provost's Office for both their monetary support and for their many, many hours invested in supporting student research. And finally, thank you to all the students at the conference who persevered even when finding answers took great effort, and who are able to communicate their work with us today.

And now, I must decide. Shall I try that Fibonacci problem one more time, or watch a cat video...?

Marc Renault, PhD

Chair, Advisory Council for Undergraduate Research, Scholarship, and Creative Activities

Advisory Council for Undergraduate Research, Scholarship, and Creative Activities Committee Members 2014-2015

Alice Armstrong	Eveline Lang
Wendy Becker	Jeonghwa Lee
Corrine Bertram	Rob Lesman
William (Turi) Braun	Blandine Mitaut
Sarah Bryant	Kirk Moll
Pamela Bucher	Holly Ott
Laurie Cella	Gretchen Pierce
Neil Connelly	Kathryn Potoczak
Thomas Crochunis	Marc Renault
Allen Dieterich-Ward	Joohee Sanders
Cindy Elliott	Ashley Seibert
Alison Feeny	Elias Shissler (<i>student rep</i>)
Christy Fic	Carrie Sipes
Thomas Friele	Nathan Thomas
Ben Galluzzo	Brian Ulrich
Steve Haase	Brian Wentz
Karen Johnson	Christopher Wonders
Misty Knight	Cheryl Zaccagnini
Cyndi Koller	Curtis Zaleski
Charlene Lane	

From the Institute for Public Service and Sponsored Programs

By time-honored tradition, research and public service are identified alongside teaching as essential components of a vital university. SU's Institute for Public Service and Sponsored Programs (IPSSP) serves as a facilitator for identifying external funding resources to enable research and public service to take place.

As such, we play an active role in making the university's commitment to student research a fully realized endeavor. In addition to funding and coordinating the Minds@Work Conference, IPSSP oversees the annual Undergraduate and Graduate Research Grant Programs.

For the 2014-15 academic year, with funding from the university and the SU Foundation, IPSSP has awarded 55 undergraduate research grants. Twenty additional awards have been made to graduate students

for their independent research. The results of most of these research endeavors are included in today's conference.

Student research brings practical intellectual benefits in the form of improved learning in science, math, logic, expression, and project management. None of this could be done well without the mentorship of a dedicated faculty.

To all of those involved, we say "thank you." Please enjoy the conference and appreciate the hard work of all who made it possible.

Christopher Wonders, *Director*

Pamela Bucher, *Office Associate*

Diane Musser, *Secretary*

Undergraduate Research Grant Recipients 2014-2015

Brandon Augustine	Alyssa Hay	Aaron McKnight	Connor Schneps
Kelly Babashan	Matthew Hoffman	Alicia Mease	Jonathan Schulz
Angel Barfield	Olivia Hunt	Kailey Mellott	Amanda Schwarz
Brandon Barrett	Caitlin Hutton	Kelsey Mengle	Carl Seils
William Bennett	Grant Innerst	Rebecca Metts	Elias Shissler
Samuel Benson	Chris Jeffery	Tierney Miller	Spero Skarlatos
Nicholas Bilchak Stroughair	Nathan Jendrzejewski	Julia Moore	Ben Smith
Houda Bouhmam	Lara John	Madelyn Moyer-Keehn	Christen Smith
Mary Butler	Jessica Johnson	Douwne Muller	Ryan Spangler
Kylara Carbaugh	Kevin Jurnack	Kala Nelson	Shelby Stachel
Dominic Cesarz	Lucinda Kauffman	Devon Newcomer	Emilee Stoner
Kelsey Chattin	Megan Kelsall	Kyra Newmaster	Ali Stouffer
Robyn Collette	Dream Kim	Janessa Nichols	Ashley Stuck
Serena Cox	Stephanie Knotts	Nicole Nicholson	Sarah Sumner
Tyler Dalious	Nicole Koenig	Eric Novak	Joe Todora
Connor Daly	Chelsea Ksanznak	Jillian Onyskiw	Jordan Travis
Jay Davidson	Sara Landis	Alyson Poorbaugh	Jordan Unger
James DeFrancisco	Kathleen Lazarski	Selina Prettner	Josh Updike
Kate Destafano	Josh Levitsky	Zackory Price	Ashley Vellucci
Kate Diltz	Thomas Lightner	Jessica Rauchut	Kim Wallace
Michael Donovan	Katherine Lindsay	Emily Reesey	Victoria Walls
Kaitlyn Frey	Josh Lowe	Heather Rensch	Colin Watford
Kayla Fyfe	Paige MacWilliams	Vladimir Rep	Harley Weigle
Tyler Garrett	Alex Manning	Anna Rickard	Lauren Wenerd
Mercy Gituma	Kelsey Martin	SaraBeth Riley	Samantha Winebark
Hannah Greenberg	Virginia Masland	Matthew Ritts	Heather Winter
John Han	Taylor Mason	Rikki Sargent	Melissa Zebekow
Jessica Harding	Katie McClellan	Heather Schmuck	

Not all Undergraduate Research Grant Recipients will be presenting their research at this year's conference due to the timing of the conference and nature of their research.

Undergraduate Research Grant Advisory Committee Members 2014-2015

Brad Armen	Kim Klein	Greg Paulson	Russell Robinson
Pamela Bucher	Charlene Lane	Kathryn Potoczak	Christine Senecal
M. Blake Hargrove	Britt Patterson	George Pomeroy	Christopher Wonders
Jeb Kegerreis			

Graduate Research Grant Recipients 2014-2015

Safiya Abubakar	Christopher McGuire
Sarah Bartle	Aaron Mills
Jason Dallas	Ashley Moyer
Cody Frick	Zachary Phillips
Joseph Galella	Zared Shawver
Brett Gildner	Ariel Slotter
Kristopher Goetz	Melvina Steinbacher
Kelsey Kilhoffer	Adrienne Williams
Alex Kostik	Emily Young
Miranda McCleaf	Jessica Weidner

Not all Graduate Research Grant Recipients will be presenting at this year's conference. Several will be presenting their research at the PASSHE Graduate Research Symposium and several are still conducting their research.

Graduate Research Grant Advisory Committee 2014-2015

Sherri Bergsten	Robert Setaputra
Barbara Denison	Christopher Schwilk
Scott Madey	Christopher Wonders

Ezra Lehman Memorial Library Research Award 2014-2015

The Library Research Award was developed in 2009 by the faculty and administration of the Ezra Lehman Memorial Library, in conjunction with the Institute for Public Service and Sponsored Programs and the Council on Student Research. The annual award recognizes the best literature review submitted by students who have received grant support for their participation in the annual Minds@Work Conference or by conducting other research with a faculty mentor. The first prize recipient receives a \$500 cash prize and the honorable mention recipient is awarded a \$300 prize. Commemorative posters will be made of the winners and the posters will be displayed in the library. The Library Research Award is made possible by the generous support of Berkley and Carol Laite (SU Classes of 1967 and 1965, respectively). The winners will be announced and awards presented at the Kirkland/Spizuoco Memorial Science Lecture at 7:30 PM on Wednesday, April 22, at the Luhrs Performing Arts Center.

Celebrating the Written Word

We will celebrate the publication of both *The Reflector* and *Write the Ship* on Thursday, April 23, at 7:00 PM, in the Cora I. Grove Spiritual Center.

DEPARTMENTAL CONFERENCE PANELS



Biology

TIME: 3:30 - 5:45 PM

LOCATION: 119

Undergraduate Research in Biology

This session includes seven oral presentations by undergraduate students in the Department of Biology. Presentations encompass environmental impact studies and cell/molecular studies. The environmental projects address the role of logging on plant reproduction/pollen diversity and the impact of invasive species on plant diversity and soil quality. Five of the presentations include projects that use cell/molecular techniques to investigate gene expression in glioma cell lines and myoblasts as well as the fate of aberrant tRNAs in yeast cells. One of cell/molecular projects investigates regulation of brown adipocyte-related genes in myoblasts. Three of the cell/molecular project focus on the role of autophagy in cell growth and death of glioma cells.

The Effects of Logging on Mountain Laurel Reproduction and Pollinator Diversity

Josh Levitsky, Stephanie Knotts

Faculty Mentor: Dr. Heather Sahli

*Impact of Invasive *Ranunculus ficaria* on Native Plant Diversity and Soil Quality*

Virginia Masland, Kate Destafano, Josh Levitsky

Faculty Mentor: Dr. Heather Sahli

*Investigating the Fate of Aberrant tRNAs in *Saccharomyces cerevisiae**

Katya Luckenbach, Lauryn King, Amanda Barnes

Faculty Mentor: Dr. Emily Kramer

Regulation of Brown Adipocyte-Related Genes in C2C12 Myoblasts

Julia Moore, Elias Shissler

Faculty Mentor: Dr. William Patrie

*Engineering of Vectors to Express Fluorescent Fusion Proteins for *Beclin-1*, *Atg4c* and *Atg4b* Autophagy Regulatory Proteins*

John Han, Aaron McKnight, Connor Schneps

Faculty Mentor: Dr. Sherri Bergsten

*Visualization of Direct Interactions between LC3 (*Atg8*) and p62/SQMI to Quantify Autophagy in Glioma Cells*

Kyra Newmaster, Jessica Rauchut, Jonathan Schulz, Sarah Sumner

Faculty Mentor: Dr. Lucinda Elliott

*The Effect of Overexpressing *Atg5* on Growth Characteristics of Glioma Cells and Characterization of *Atg5* and EGFP-*Atg5* in these Cells*

Alex Manning, Emily Reese, Ryan Spangler

Faculty Mentor: Dr. Lucinda Elliott

TIME: 6:00 - 8:30 PM

LOCATION: 119

Ecology and Natural History of the Central Appalachian and Mid-Atlantic Coastal Region

This session of biology graduate student presentations examines the ecology, natural history, and conservation of organisms and ecosystems of our central Appalachian region, along with a diversion to the Virginia coast. The focal organisms include invertebrates, fish, reptiles, birds, mammals, and the bacterium that causes Lyme disease, along with its host ticks. Ecosystems studied range from coastal marshes, freshwater wetlands and headwater streams to upland forest. The talks highlight the range of ecological interests of our graduate students and faculty members, and shed light on the biological diversity of our surrounding natural areas as well as the challenges these ecosystems are facing at a time of rapid global change.

**Borrelia burgdorferi* Epizootiology in Pioneer Forests: Understanding Lyme Disease*

*Prevalence in *Betula lenta* (Black Birch) Forest Stands in South-central Pennsylvania*

Aaron Mills*

Lyme disease, caused by *Borrelia burgdorferi*, is the most frequently reported vector borne disease in the United States. While this disease is often linked to older growth oak forests, disturbances are increasing the prominence of successional forests. Black Birch (*Betula lenta*) is a common and fast growing species in regenerating forests in Pennsylvania. Few studies have been directed toward understanding infection prevalence in successional forests. The aim of this study is to gain an understanding of the dynamics of *B. burgdorferi* in Black Birch forests. Small mammal trapping and tick collections will provide an estimate of host abundance and *B. burgdorferi* prevalence. Black Birch forests are expected to have a higher prevalence of *B. burgdorferi* resulting from an increased proportion of competent hosts. Results from this study can be combined with existing information to educate the public on Lyme disease risks and enhance forest management strategies in Pennsylvania forests.

Faculty Mentor: Dr. Richard Stewart

*The Effects of the Hemlock Woolly adelgid (*Adelges tsugae*) on Aquatic Macroinvertebrates in Headwater Streams in South-central Pennsylvania*

Alicia Helfrick*

Eastern hemlock (*Tsuga canadensis*) is declining due to invasive hemlock woolly adelgid. Aquatic systems are expected to change with the replacement of hemlock by deciduous species, but few have tested this directly. We sampled macroinvertebrates, fish, and riparian vegetation in 15 hemlock-dominated sites of varying conditions in south-central Pennsylvania. Black birch (*Betula lenta*) canopy cover was positively associated with the decline of understory hemlock. In turn, stream temperature declined, and nitrate levels increased, with increased birch canopy cover. Fish biomass and density were highly influenced by pH and water temperature, but not hemlock cover or condition. Macroinvertebrates are expected to show taxonomic and functional feeding group differences due to forest succession. In these sites, adelgid-infested riparian hemlock was rapidly replaced by birch, which in turn altered the aquatic environment with possible influences on fish and macroinvertebrates.

Faculty Mentor: Dr. Theo Light

Habitat Utilization, Movement Patterns and Home Range of Female Eastern Box Turtles (Terrapene c. carolina) at a Site in South-central Pennsylvania: Implications for Conservation

Sarah Bartle*

Little is known about the habitat use, movements and home range of natural populations of Eastern Box Turtles (*Terrapene c. carolina*) in south-central Pennsylvania, near the northern limit of their range. For this study, I radio-tracked five female Eastern Box Turtles, two to three times weekly, from June 2014 until hibernation in late October. Upon location, I recorded turtle positions, habitat types, and weather data. Habitat type use and home range sizes were analyzed with the software ArcGIS. Mixed forest was the main habitat used and home ranges were between 0.6 and 17 ha, using the minimal convex polygon method. In 2015, I will expand the study by tracking three additional turtles, analyzing hibernation and nesting soils, and determining the effects that weather and habitat have on the extent of these turtles movement. Identifying habitat utilization and the extent of Eastern Box Turtle home ranges will aid in the conservation and management of the species in Pennsylvania.

Faculty Mentor: Dr. Pablo Delis

Morphometrics, Ecology and Demographics of Eastern Mud Turtle Kinosternon subrubrum (Lacépède, 1788) in Wallops Island, Virginia

Safiya Abubakar*

The Eastern Mud Turtle, *Kinosternon subrubrum*, is a rare aquatic species in the northeastern United States. Despite its wide range, there are no in-depth studies on this species in barrier islands. In June of 2014, I trapped 36 Eastern Mud Turtles in Wallops Island, Virginia, and collected morphometric, ecological and demographic data. Males were slightly larger and heavier than females. Of the 16 females captured, 12 were gravid with an average clutch size of 2.7 eggs. Under laboratory aquaria conditions, I tested 10 turtles for salinity tolerance. When in 8.5 or 0 ppt salinity, turtles spent an average of 96.6 % of time in the water, while when in 18.5 ppt salinity, turtles spent just 55.7 %. The sex ratio of females to males was 1:1.2, and a single juvenile and no hatchlings were captured in my survey. From my salinity tolerance data, all the wetland habitats of Wallops Island should be tested for salinity levels and therefore their suitability for this rare aquatic turtle.

Faculty Mentor: Dr. Pablo Delis

An Assessment of the Movement and Habitat Use of Spotted Turtles (Clemmys guttata) after Regrowth of a Managed Area in Pennsylvania

Miranda McCleaf*

Spotted turtles (*Clemmys guttata*) were radio-tracked in Michaux State Forest, Pennsylvania during their active season between April and October 2014. The study area was the site of a timber harvest twenty four years ago. Aquatic and terrestrial coordinates were collected to evaluate movement patterns and habitat use. Vegetation density surveys were conducted to characterize successional and older growth forest types and canopy cover. Combined data were assessed to find correlations and preferences in turtle's use and habitat characters. This study design replicates observations of the same turtle population that lasted two seasons and occurred ten years ago, conveying the importance of multi-year studies. This research contributes to a better understanding of the natural history of spotted turtles and can be used to support conservation management plans.

Faculty Mentor: Dr. Tim Maret

Land Use-land Cover Differences of White-tailed Deer in Urban and Rural Areas of Southeastern Pennsylvania

Greg Flood*

White-tailed deer (*Odocoileus virginianus*) have been studied extensively and are still widely researched today, but research is lacking when it comes to urban populations and comparisons to their rural counterparts. The goal of this study is to quantify the habitat differences as well as size and shape of home range polygon and determine any anthropogenic factors influencing deer in this region. Today's literature points to the kernel density estimation to be a better indicator of home range and core area size as compared to other methods. The Pennsylvania Game Commission trapped, tagged and monitored white-tailed deer from January 2012 to January 2014. We used locations to produce home range and core area estimates using minimum convex polygon and kernel density estimators. Results from this study will enable managers to make decisions about which best management practice to employ.

Faculty Mentor: Dr. Richard Stewart

American Woodcock Scolopax Minor Spring Habitat Use in South-central Pennsylvania

Kristopher Goetz*

American Woodcock (*Scolopax minor*) populations have been in long-term decline since the 1960's. Habitat loss has been thought to be one of the main factors in woodcock decline. In March and April of 2014 we surveyed Wildlife Habitat Openings (WHOs) maintained by the Department of Conservation and Natural Resources in the Michaux State Forest. Male woodcock were found displaying at 52.6% of openings surveyed between March 23rd and April 6th. The mean average of males displaying at occupied WHOs was 2.7 males per opening. Sites surveyed April 7th and after had zero displaying woodcock detected. Habitat data collected from the forest adjacent to WHO openings revealed tree diameter at breast height (DBH) was significantly smaller at openings used by displaying males. All male woodcock detected were displaying prior to the date set by the US Fish and Wildlife Service to conduct official woodcock counts in South-central Pennsylvania.

Faculty Mentor: Dr. Nathan Thomas

Chemistry

TIME: 5:30 - 8:00 PM

LOCATION: 226

Undergraduate Research Projects in Chemistry

This symposium will focus on the research projects performed by undergraduate chemistry majors. Research projects will include topics from the disciplines of analytical chemistry, biochemistry, inorganic chemistry, organic chemistry, and physical chemistry.

Qualitative and Quantitative Analysis of Fluorine Containing Synthetic Cannabinoids **Jay Davidson**

Faculty Mentor: Dr. John Richardson

Colloid Particle Motion and Aggregation in Silica Aerogels: Experiment and Simulation **Kelsey Mengle**

Faculty Mentors: Dr. Jeb Kegerreis, Dr. John Richardson

Characterization of a Human Orphan G-Protein Coupled Receptor, GP133 **Tierney Miller**

Faculty Mentor: Dr. Thomas Frielle

DNA Binding and Cleavage Studies of Aryl Sulfoxides **Heather Rensch**

Faculty Mentor: Dr. Allison Predecki

Determination of the Pathway Leading to Occludin Phosphorylation in Diabetic Retinopathy **Selina Prettner**

Faculty Mentor: Dr. Robin McCann

*A Modified ELISA to Determine Levels of TTX and its Links to the Life History of the Eastern Newt, *Notophthalmus viridescens** **Heather Winter**

Faculty Mentor: Dr. Robin McCann

Using the Relativistic Particle in a Box to Model Conjugated Dyes **Brandon Barrett**

Faculty Mentor: Dr. Jeffery Lacy

Optical Evaluation of Fluorescent Nanoparticles Embedded into Silica Aerogel Hosts **Thomas Lightner**

Faculty Mentor: Dr. John Richardson

Disability Studies Minor

TIME: 3:30 - 5:00 PM

LOCATION: 226

Exploring Issues of Women with Disabilities

The Perceived Value of the Disability Services at Shippensburg University **Gina Bryson**

The Perceived Value of the Disability Services at Shippensburg University **Michelle Jones**

The Effect of Physical Disability on Female Sexual Identity **Katherine Burkett**

Motherhood from the Perspective of Women with Intellectual Disabilities **Jonathan Dubelle**

Homosexuality and Disabilities: Minority Identity Overload **Stacey Moran**

On the Reproductive Rights of Females with Disabilities **Sasha Winters**

Women in a Mental Health Program **Shannon Gaumer**

The SURE Experience **Rebecca Moore**

Faculty Sponsor: Dr. Marita Flagler

Discussant: Dr. Marita Flagler

English

TIME: 3:30 - 4:45 PM

LOCATION: 104

Lost Souls in the City

In literature, the city is often depicted as a setting that dehumanizes individuals, isolating them from others and even from themselves. These five young writers explore this notion in original works of fiction.

Blood and Angels
Zach Stanbury

Attempted Fails
Ana Guenther

Dablia
Robert Wilson

Diagnosed
Natalie Eastwood

Crossroads
Carrie Breeden

Faculty Sponsor: Prof. Neil Connelly

Discussant: Prof. Neil Connelly

TIME: 5:00 - 6:00 PM

LOCATION: 104

Poetry: The Music of the Line

This panel features original work from the young writers in Introduction to Poetry Writing (ENG 307). These poets will present a variety of unique voice and style inspired by contemporary poetics.

**Samantha Beckerleg, Jackelyn Cheesman,
Yaneshia Gaston, Ana Guenther, liesha Hamilton,
Emily Isbel, Megan McGee, Rebecca Orner,
Amanda Sanger, Jordan Snyder, James Wright**

Faculty Sponsor: Dr. Nicole Santalucia

Discussant: Dr. Nicole Santalucia

TIME: 6:00 - 7:00 PM

LOCATION: 104

Poetry: The Art of Description

This panel features poets from Dr. Santalucia's Advanced Poetry Workshop (ENG 427). These students will present original poetic work and discuss the power of voice and the art of description.

**Shanice Grayer, Daniel Bowman, Mollie Fenby,
Mark Frank, Steven Lagerholm, Alesia Lawrence,
Kira Miller, Aaron Rhoads, Hillary Thomas**

Faculty Sponsor: Dr. Nicole Santalucia

Discussant: Dr. Nicole Santalucia

TIME: 7:00 - 8:30 PM

LOCATION: 104

Write the Ship *Editor's Choice Award Winners*

This panel features the Editor's Choice Award Winners from the 2014-2015 undergraduate journal, *Write the Ship*.

An Analysis of the First Crusade
Joshua Torzillo

Shippensburg University: Dry Versus Wet Campus
Timothy Usher, Blair Garrett, Evan Ramos

Keep it Real: Ditch Artificial Christmas Trees
Jason Laubach

Inner Conflict: An Analysis of Robert Frost Poems
Amanda Sanger

*Shippensburg University Student Shares
Tragic Past and Bright Future*
Laura Binczak

Historical Fiction and the Human Narrative
Cory Stevens

Faculty Mentor: Dr. Laurie Cella

Discussant: Dr. Laurie Cella

Exercise Science

TIME: 3:30 - 4:30 PM

LOCATION: 239

Research Applications in Exercise Science

Student research projects involving analysis of bat quickness and bat speed based on handedness; the effects of an energy drink on anaerobic performance; and the influence of training status and aerobic power on glycemic control will be reviewed in this session.

*Bat Quickness & Bat Velocity for Left
and Right Handed Swings*
Jessica Harding

*The Effects of Energy Drinks on Human
Anaerobic Performance and Mood*
Kelsey Chattin

*The Effect of Training Status on Glycemic
Control in a Collegiate Population*
Kim Wallace

Faculty Sponsor: Dr. William Braun

Discussant: Dr. William Braun

Finance

TIME: 3:30 - 5:00 PM

LOCATION: 232

Investment Management Portfolio

The Investment Management Program, "IMP," here at Shippensburg University is one of the only few undergraduate programs in the United States, which provides a unique hands on educational experience in investments. Students in the program make all of the decisions involving management of the investment portfolio, known as the Wiseman Fund, which has been generously donated by the SU Foundation. The SU Foundation and the Finance Department have set up a Finance Advisory Council, "FAC," which is responsible to oversee and advise IMP. The two groups meet semi-annually and annually to have a continuous flow of communication, just as money managers do with their clients. Though one of the most important goals of the program is to give students a hands-on experience with investing in a portfolio, the main goal is to grow the Wiseman Fund to at least \$100,000 in order to start granting scholarships to students. This is the first year that funds have been withdrawn for students' benefit.

**Lisa Robbins, Ben Shenk, Chad Brooks, Colin Ward,
Chelsea Scamak, Dave Calambas, John Dickson,
Jeremie Patrick, Leah Johnson, Mike Kuder,
Marie Smith, Spencer Haines**

Faculty Sponsor: Dr. Hong Rim

Discussant: Dr. Hong Rim

History

TIME: 2:00 - 3:15 PM

LOCATION: ORNDORFF THEATER

Re-thinking the Divine in the Ancient Mediterranean

Honors first-year students in a history course composed each of these exceptional research papers dealing with innovative considerations of the divine in the Ancient Mediterranean.

Humor Theory and the Evolution of the Physician in the Greco-Roman World

Rachel Shaffer

I analyzed the methodology of Ancient Greek and Roman physicians who adopted the Humor Theory as a way to treat illness. Often praised for their shift away from a religious-based approach to treatment, these physicians were no more rational than their overtly religious peers in their approach, having their ultimate purpose to extol the role of the physician rather than developing a proto-scientific method.

Lilith and Patriarchal Fears in Ancient Judaism

Tara Bennet

My paper discusses the ways that the demon Lilith was imagined and re-invented in the Ancient Jewish world. Although Lilith confronted patriarchal fears, in many ways her very opposition to normative ideas about femininity reflects the masculine-dominated world from which she came.

Female Obstetrics and Sexuality in Early Islam

Mckenzie Brouse

Rather than taking a simplistic view of whether the Muslim world of the early Caliphates condemned female sexuality, my paper demonstrates that the real point of any judgment on this topic was to reflect the significance of Allah, leading to a wide range of different practices and statements about women, obstetrics, and sexuality.

Faculty Sponsor: Dr. Christine Senecal

Discussant: Dr. Christine Senecal

Human Communication Studies

TIME: 3:30 - 4:30 PM

LOCATION: MPR A

Health and Communication Competence: Research Studies Exploring Relationships

The panel features two research studies. The first study explores personality predictors of student perceived physician fear and physician satisfaction. The second study explores communication competence, interpersonal attraction, and romantic interest regarding the development of romantic relationships.

Personality Predictors and Healthcare: An Examination of Personality Super Traits as Predictors of Physician Fear and Physician Satisfaction

**Amanda Martin, Collin Cressler, Caleb Dively,
Joshua Berstecher**

Perceived Communication Competence, Interpersonal Attraction, and Romantic Interest: Predictors of Romantic Relationship Development

Timothy Sharrow, Nyelle Brooks, Natalia Carden

Faculty Sponsor: Dr. Matthew Ramsey

Discussant: Dr. Misty Knight

TIME: 4:30 - 5:30 PM

LOCATION: MPR A

Exploring Humor and Romantic Relationships: Investigations into Verbal Aggression, Interpersonal Attraction and Sense of Humor

The panel features two research studies. The first explores sense of humor, humor orientation, and verbal aggression in romantic relationships. The second explores sense of humor and humor orientation as predictors of interpersonal attraction.

Sense of Humor, Humor Orientation, and Verbal Aggression in Romantic Relationships: Laughing at Aggression

Reece Lauffer, Matthew Atwell, Christopher Wozniak

Laughing Your Way into a Relationship: Examining Sense of Humor and Humor Orientation as Predictors of Interpersonal Attraction

Mary Paterson, Nicholas Massetti, Heather Morrow, Sheldon Mayer

Faculty Sponsor: Dr. Matthew Ramsey

Discussant: Dr. Matthew Ramsey

TIME: 5:30 - 6:30 PM

LOCATION: MPR A

Identity and Self-Disclosure: An Examination of University Student and Faculty Communication

The panel features two research studies. The first explores student perceived identity gaps as predictors of communication apprehension and self-disclosure. The second study highlights student perceptions of professorial disclosures, likeability, and teaching effectiveness.

Communicating Identity as University Students: An Examination of the Relationships among Identity Gaps, Self-Disclosure, and Communication Apprehension

Amanda Segner, Austin Whitehead, Theodore Brennan, Victoria Cini

An Examination of Professorial Self-Disclosure, Student Likeability and Perceived Teaching Effectiveness

Michael Thomas, Megan Stewart, Alexis Hillard

Faculty Sponsor: Dr. Matthew Ramsey

Discussant: Dr. Kara Laskowski

TIME: 6:30 - 7:30 PM

LOCATION: MPR A

Deception and Decisions: Communication Research Examining Romantic Relationships and Intercultural Communication

The panel features two research studies. The first study explores lie acceptability, commitment, and tolerance for disagreement in romantic relationships. The second study examines student-based ethnocentrism, intercultural communication apprehension, and intentions to study abroad.

It's Just a Lie: An Examination of Lie Acceptability, Commitment, and Tolerance for Disagreement in Romantic Relationships

Marissa Shaughnessy, Rodney Baltimore, Kelsie Paxton

Studying Abroad: Should I Stay or Should I Go? An Examination of University Student Ethnocentrism and Intercultural Communication Apprehension Levels

Michael Sparks, Kellyann Mack, Brijesh Merchant, Jesse Fogg

Faculty Sponsor: Dr. Matthew Ramsey

Discussant: Dr. Richard Knight

International Studies

TIME: 3:30 - 4:30 PM

LOCATION: 103

Pot, Penicillin, and the Pill: A Global View of Drugs

This panel examines three drugs, Hallucinogens, Krokodil (an opioid), and Viagra, and questions whether they ought to be available on the free market to use, legal but with some restrictions limiting their usage, or completely banned. To come to their conclusions, the authors examine why and how the drugs have been used around the world, be it for medicinal, cultural, or recreational purposes.

Hallucinogens

Mercy Gituma, Rebekah Mathes, Thaddeus Kush, Elizabeth Munyao

Krokodil

Emmaline Johnson, Jacob Davidson, Briana Blewett, Jeremy Lafaw

Viagra

Jarrell Howell, Kelsea Collins, William Davis

Faculty Mentor(s): Dr. Gretchen Pierce, Dr. Allison Watts

Modern Languages

TIME: 3:30 - 5:00 PM

LOCATION: 105

A Conversation on Haiti

This department panel consists of a conversation between four students who will share the results of the research they conducted in Haiti during the 2015 winter break. The conversation will be moderated by their professor. The students' research focuses on the influence of NGOs in the island nation and the consequences of their intervention; on the socialization of children and the effects of poverty on their education; on religious practices on the island; and finally on the issues linked to deforestation that have plagued Haiti since its independence in 1804. The students conducted their research in two ways: through various interviews with local authorities in the village of Gros Mangle and other villagers, as well as the body of existing literature published on their respective topics. The conversation aims to relate their observations enhanced by the fruit of their investigations, and will discuss possible improvements to the situations they witnessed.

Cody Connelly, Fallon Finnegan, Jessica Strickland

Faculty Sponsor: Dr. Agnes Ragone

Discussant: Dr. Agnes Ragone

Political Science

TIME: 5:00 - 7:00 PM

LOCATION: 103

Violence and Hope in World Politics

World politics seems ever more complex in both the nature and pervasiveness of violence and the depth of hope and progress. This panel engages both, addressing violence in the Crimea and the impact of war on the cultural treasures of a people while juxtaposing this to the hope implicit in the role of information in engaging both the Arab world and the young. Issues and challenges faced by states are rarely kept in hermetically sealed containers, which two of our papers remind us when addressing the topic of crop and food safety and the stunning difference in how the U.S. as opposed to the world approaches the issue of guns. It is clear that understanding world politics requires an eye to conflict, a sensitivity to cooperation, and a constantly shifting gaze from the micro to macro level of analysis.

GMO Regulation and Policy Diffusion:

A Gift from the EU to the US

Heather Day

The Latest State to Come and Go:

The Republic of Crimea

Jacob Davidson

Preserving Cultural Heritage during Times

of War: Preservation through Precedence

Andrew Harris

An Analysis of Civil Society, Freedom of Information, and Transparency in the Arab World

Emmaline Johnson

Are You Engaged? The Role of News and Knowledge among the American Public

Natalie Benner

Influential Lobbyist: The NRA and US Gun Culture in Comparison

James Connor

Faculty Sponsor: Dr. Cynthia Botteron

Discussant: Dr. Cynthia Botteron

HONORS SYMPOSIUM



The Honors Symposium is the formal forum where Honors Program seniors present their capstone projects. The research, creative, and service-learning projects that our students are presenting today represent the culmination of their academic experience in the Honors Program. Thank you for joining us to learn about their projects and acknowledge their hard work!

Business

TIME: 2:00 - 2:45 PM

**LOCATION: HONORS SEMINAR ROOM,
PRESIDENTS HALL**

Bribery: An Unethical Act or a Necessary Evil?

Although bribery is considered a criminal activity in most countries, it is still a major issue in today's international business world. Most research on bribery analyzes the factors that motivate bribery. My research takes these studies further by adding an ethics component. After considering the motivating factors and determining the reasons bribery is used, my study examines whether bribery is an unethical act or merely a necessary evil. To take a closer look at the ethical side of bribery, current students and business professionals were surveyed to determine how bribery is viewed today. The survey results also helped to determine whether ethics classes or experiences impact a person's ethics and how these impacts may influence a person's decision to engage in an unethical act like bribery.

Kiley Petro

Faculty Sponsor: Dr. Wendy Becker

Discussant: Dr. Kim Klein



Unleashed Potential Athletic Performance Training Center

Because Americans are increasingly concerned with fitness and health, many gyms are opening to meet their needs. My capstone project focused on producing a business plan for a personal athletic performance training center. Preparing the plan involved researching industry information, averages, target-market, competitive analysis, and regulatory restrictions, as well as determining the organizational structure, ownership information, marketing strategy, budgeted financial statement projections, and funding. The plan's differentiating factor stems from the combination of services offered, including speed, agility, and quickness training; free weights for weightlifting; CrossFit classes; and individual personal training.

Kelsey Staszyn

Faculty Sponsor: Dr. William Bealing

Discussant: Dr. Kim Klein

Business, Computer Science, and Criminal Justice

TIME: 5:00 - 6:00 PM

LOCATION: ORNDORFF THEATER, CUB

An Analysis of Multi-Scale Horn-Schunck Optical Flow Approximation

Optical flow algorithms present a unique solution to the problem of image motion approximation. However, the core techniques used in this area have become severely outdated. This project analyzes a modernization of the classical Horn-Schunck method that attempts to improve the algorithm with a multi-scale strategy for allowing approximation of large image motions. Implementing this modernization in Java was found to improve the accuracy of the classical algorithm by more than 88% on standard test images with relatively small differences from the authors' reported results. The successful application of this technique could allow other classical algorithms to be updated for modern optical flow applications as well as making it possible for the field to continue to progress towards the ultimate goal of human-like results for computer vision systems.

Connor Fox

Faculty Sponsor: Dr. Alice Armstrong

Discussant: Dr. Kim Klein



Police Discretion in Low- and High-Crime Areas

An understanding of the factors that influence decision-making by police officers is crucial to the continual improvement of the criminal justice system. Police officers have wide latitude in their decision-making processes and the differing environments in which they work have not been widely examined. My study compared the differences in police officers' decision-making in low- and high-crime areas. Research methods included eighty hours of observation and statistical analysis.

Brandon Duelley



Faculty Sponsor: Dr. Britt Patterson

Discussant: Dr. Kim Klein

JLG Internship: Development of On-Call Resolution Models

This project is intended to reduce inefficiencies in JLG's Business Intelligence (BI) on-call resolution process. The opportunity to complete this task presented itself at my summer internship at JLG. During the internship I worked in the BI department performing data analytics and database maintenance. The original overnight process requires the BI on-call team to review each failure alert regardless of its importance. Many of these alerts involve the same action each night, and can be resolved by anyone with access to the database. My project is to add an additional level to the on-call system to reduce the number of calls the BI department receives each night. I also will meet with the owners of each report to create step-by-step models for every job and validation failure that occurred in the past year. I plan to show how the completion of this project allows for a more efficient use of the company's time and resources.

Jennifer Carlin

Faculty Sponsor: Dr. Joseph Catanio

Discussant: Dr. Kim Klein

Natural Sciences I

TIME: 3:30 - 4:30 PM

LOCATION: ORNDORFF THEATER, CUB

Silica Microparticle Motion and Aggregation in Silica Aerogels: Experiment and Simulation

Silica aerogels have high porosity and surface area and are able to incorporate microparticles within their material structure. Here, silica microparticles are encapsulated into the aerogel framework before gelation, and a camera connected to an inverted microscope was used to monitor the motion of the particles over time until the gel network finishes cross-linking and became fixed. The spatial arrangement and changes in cluster (aggregate) formation of the particles were simulated with a computer code written in Fortran using Monte Carlo methods and the Lennard-Jones potential that models particle-particle interactions. A future application of this work is to control the arrangement of particles in the aerogel matrix, thus altering the composite to exhibit desired electrical properties.

Kelsey Mengle

Faculty Sponsors: Dr. John Richardson, Dr. Jeb Kegerreis

Discussant: Dr. Joseph Shane



Characterization of a Human Orphan G-Protein Coupled Receptor, GP133

Of the approximately 900 human G-protein coupled receptors (GPCRs) that have been cloned, the agonists- molecules that bind and activate the receptor- of only 300 have been identified, while the remaining 600 are termed orphan receptors. The human orphan GPCR, GP133, is classified as an adhesion receptor due to certain structural characteristics. It shows significant similarity to four GPCRs from the slime mold, *Dictyostelium discoideum*, that initiate and govern the developmental pathway of the organism. The *D. discoideum* GPCRs bind the extracellular agonist 3',5'-cyclic adenosine monophosphate (cAMP) initiating the signaling pathway that results in increased intracellular cAMP. Given GP133's similarity to the *D. discoideum* GPCRs, it is possible that GP133 is activated by extracellular cAMP, initiates the same pathway and may play a similar role in human development. Initial experiments suggest that GP133 may be activated by cAMP resulting in the synthesis of intracellular cAMP.

Tierney Miller

Faculty Sponsor: Dr. Thomas Frielle

Discussant: Dr. Joseph Shane



DNA Binding and Cleavage Studies of Aryl Sulfoxides

Free radical-initiated DNA cleavage is an important mechanism in cancer therapy, including chemotherapy. Free radicals can cause damage to the DNA of a cancer cell leading to cell death. Previous studies in our lab have shown that simple aryl sulfoxides can cleave DNA by means of carbon or oxygen centered free radicals when exposed to ultraviolet light. By functionalizing the aryl sulfoxides with polyaromatic ring systems that are known to bind to DNA, the efficiency of DNA cleavage should increase. Four aryl sulfoxides with polyaromatic ring systems have been previously synthesized. DNA plasmid relaxation assays were performed to determine if these compounds cleave DNA when exposed to ultraviolet light. The binding affinities of these compounds to DNA were determined using an Ethidium Bromide Displacement Assay.

Heather Rensch

Faculty Sponsor: Dr. Allison Predecki

Discussant: Dr. Joseph Shane

Natural Sciences II

TIME: 6:30 - 7:45 PM

LOCATION: ORNDORFF THEATER, CUB

*Prevalence of *Trichinella* sp. Infections in the American Black Bear *Ursus Americanus* in Pennsylvania*

Trichinella sp. is a nematode that has the ability to infect a wide variety of hosts, including humans, other mammals, and various species of birds, with the disease trichinosis. The CDC states that those consuming wild game, particularly bear meat, have a higher risk of infection. In the fall of 2013, muscle samples were collected from 173 black bears from five different weigh stations in Pennsylvania. Artificial digestion was performed on 25 of these samples in the spring of 2014. Genetic sequencing techniques, including nested and multiplex polymerase chain reaction (PCR), were used in the 2014-2015 academic year to determine the presence of *Trichinella* in these samples. Multiplex PCR was used to determine the species of *Trichinella* present. This research contributes new knowledge of the parasite's geographic distribution and prevalence within Pennsylvania's American Black Bear population, which can be used as a sentinel for monitoring *Trichinella* prevalence in the state.

Hannah Greenberg

Faculty Sponsors: Dr. Marcie Lehman, Dr. Richard Stewart

Discussant: Dr. Kim Klein



*Characterization of *Erwinia Amylovora* Isolates, The Causative Agent of Fire Blight*

Erwinia amylovora is a gram-negative, rod-shaped bacteria. It causes fire blight, a destructive disease affecting most species of the Rosaceae family, mainly apple and pear trees. Fire blight presents a threat to countries around the world cultivating apples and pears. It causes extreme economic loss because of the plants affected, but more importantly, due to the absence of registered products to control the contagious disease. As suggested by the name, "fireblight," plant shoots, leaves, and flowers appear as if scorched by fire. Plant death is evident once the roots become invaded. The mechanism behind the degree of disease severity that occurs year to year is unknown, but could be due to either the tree's response to the infection or to different strains of the organism associated with this disease. *Erwinia* isolates associated with varying degrees of infection severity from diseased trees were tested to determine if differences exist in the biochemical and molecular properties.

Lucinda Kauffman

Faculty Sponsor: Dr. Marcie Lehman

Discussant: Dr. Kim Klein

Texting and Walking: A Dual-Task Study on Gait Patterns in a College-Aged Sample

The purpose of this study was to examine the effects texting while walking had on gait patterns in a college-aged sample. The subjects were 21 Shippensburg University students. Subjects walked through a mock intersection for a total of four trials, two walking without texting (control) and two texting while walking (dual-task). Trials were performed in a random order. Selected kinematic gait variables were measured using a gait mat and differences in time were measured using a timing system. The research found that gait speed was significantly lower ($p \leq .05$) in the dual-task trials than in the control trials. Cadence was significantly lower in the dual-task trials and double-support time was significantly greater during the control trials. There was no significant difference in right and left step length. The study concluded that it took a significantly longer time to go through the mock intersection during the dual-task trials compared to the control trials.

Sara Long

Faculty Sponsors: Dr. Russell Robinson, Dr. Sally Paulson
Discussant: Dr. Kim Klein



Sustainability on the Half-Shell: Modeling Oyster Populations

Population modeling, often addressed in courses ranging from College Algebra to Differential Equations, is not often associated with sustainability. On the eastern shore of Virginia, oyster beds are being created to help prevent shoreline erosion. The growth of these oyster populations is of great interest to land owners, environmentalists, and local businesses. My research examined population models of the Eastern Oyster based on data from the Chincoteague Bay, Virginia region and how these models can be scaled for use in multiple classroom settings.

Grant Innerst

Faculty Sponsor: Dr. Ben Galluzzo
Discussant: Dr. Kim Klein

Reach Out

TIME: 6:30 - 7:30 PM **LOCATION: HONORS SEMINAR ROOM, PRESIDENTS HALL**

Comparing Educational Motivation: A Cross-Cultural Study of Academic Drive in Elementary School-Aged Students

This interdisciplinary research study examined characteristics of academic motivation in students in Santo Domingo, Dominican Republic and Maryland, USA. To better understand the impact culture has on students' motivation for learning, the areas of locus of control and orientation approach style were investigated in two elementary schools. Self-response questionnaires were administered to students and differences in external locus of control and task- mastery approach style were found to be significant. The results of this study assist in the understanding of cultural impact on academic motivation and how to best meet the educational needs of students. The study found significant differences in educational drive that impact students' success. The findings are being applied to our efforts to develop effective curricular materials for our partner school in the Dominican Republic.

Shelby Coghill

Faculty Sponsor: Dr. Toru Sato
Discussant: Dr. Robert Lesman

Reaching Out to Integrate Language Arts Education in the Dominican Republic

How can international service-learning projects have a positive impact on schools in the Dominican Republic? Reach Out, a Shippensburg University Honors Program service-learning project, has explored this question since its creation in 2009. This presentation focuses on the implementation of a reading fluency education manual in our partner school. The manual uses Readers Theater, an interactive script-reading performance, to help improve reading fluency in English and Spanish.

Amanda Schwarz

Faculty Sponsor: Dr. Cheryl Slattery
Discussant: Dr. Robert Lesman



Teaching Using Mentor Texts: A Hands-On Learning Approach

Our joint research project, "Teaching Using Mentor Texts: A Hands-On Learning Approach," integrates the teaching of literacy, mathematics, social studies, and science. We researched best practices in the use of mentor texts as cross-curricular teaching tools to be used in hands-on lessons. We selected high-quality children's literature and developed lesson plans to teach literacy, mathematics, social studies, and science in conjunction with each book. The project was implemented in January 2015 when we travelled to Santo Domingo, Dominican Republic, where Reach Out, which is an Honors service-learning project, is partnered with The Pathways of Learning School. Here, we led professional development workshops for teachers and implemented our lesson plans in the classroom.

Ashley Stuck, Lauren Wenerd

Faculty Sponsor: Dr. Lynn Baynum
Discussant: Dr. Robert Lesman

Social Sciences and Humanities I

TIME: 3:30 - 4:30 PM **LOCATION: HONORS SEMINAR ROOM, PRESIDENTS HALL**

Media as a Trigger of Self-Harm

Previous research on the effects of the media on those who self-harm have been performed in foreign countries. Furthermore, there is a discrepancy in research findings regarding whether media depictions of self-harm are detrimental or helpful to those who engage in self-injury. No one has asked directly if media sources are a trigger to those who self-harm. Thus, the present study, with a sample of 52 college students who self-harm, explicitly asked that question and found different media sources do not have an overall helpful or harmful effect. The self-reported effect is associated with how reactive the person is to the particular media source, how current and/or destructive his/her self-harm acts are, and what media source the person is being exposed to. The media source reported to trigger urges or actual self-harm most often was internet images, with 40% of the sample reporting such images to be a trigger and an average report of being triggered once every five months.

Olivia Hunt

Faculty Sponsor: Dr. Kim Weikel
Discussant: Dr. Christine Senecal

Frontal Lobe Asymmetry in Relation to Symptoms of NPD, ASPD, and Binge-Drinking Behaviors

This study examined the asymmetry of the brain as it relates to antisocial personality disorder, narcissistic personality disorder, and drug and alcohol disorders. Undergraduate students from Shippensburg University volunteered and completed an EEG scan which allowed researchers to view brain wave patterns for each individual. Participants were then asked to complete a survey which included a generic drug survey, the Wechsler-94, NPI-13, and Subtypes of Antisocial Behavior questionnaire (STAB) to determine relationships between frontal lobe asymmetry and binge drinking, antisocial personality disorder, and narcissistic personality disorder.

Nicole Nicholson, Kathleen Lazarski

Faculty Sponsor: Dr. Robert Hale

Discussant: Dr. Christine Senecal



The Progression of the Affordable Care Act and the Implementation of the Healthy Pennsylvania Initiative by the Department of Public Welfare

The Affordable Care Act (ACA) is a United States federal statute that was signed into law by President Barack Obama in 2010. The ACA revised and expanded Medicaid eligibility starting in January 2014. In response to these new mandates, Pennsylvania chose to negotiate with the federal government to create a customized plan, “Healthy Pennsylvania,” that would best fit the state’s needs. Healthy Pennsylvania not only affects the 2.2 million Pennsylvania residents served by the state and federal government through Medicaid programs but also the citizens who are helping fund the programs and services. My research strives to put into focus the various components of the Affordable Care Act, to look at the goals and obstacles for the Healthy Pennsylvania Initiative, and to educate the audience on the essentials of healthcare reform as they currently stand. I looked at the design and implementation of the Act, as well as Pennsylvania’s connection to the new laws.

Melina Godshall

Faculty Sponsors: Dr. Sara Grove, Dr. Michael Greenberg

Discussant: Dr. Christine Senecal

Social Sciences and Humanities II

TIME: 5:00 - 6:15 PM

**LOCATION: HONORS SEMINAR ROOM,
PRESIDENTS HALL**

Fair Trade Coffee in Latin America

Does the label “Fair Trade” mean better conditions for coffee workers in Latin America? My research disputes that Fair Trade is the best option for buying justly made coffee. Becoming part of a Fair Trade certification program does not provide workers and communities with significant social and monetary benefits that would otherwise be unavailable without the certification. Local cooperatives, not the Fair Trade certifier, control the actual certification process. This means that coffee farms often make few changes in order to become Fair Trade Certified. Because there are few differences between Fair Trade and non-Fair Trade coffee farms, consumers have little justification for spending more to buy Fair Trade coffee.

Julia Saintz

Faculty Sponsor: Dr. Gretchen Pierce

Discussant: Dr. Alison Dagnes

President Obama’s Race to the Top: Moving Toward an Evaluation of Competitive Education Funding

Race to the Top (RTTT), President Obama’s \$4.35 billion education competition, may signal the beginning of a new paradigm of federal funding for education. Since the 1960s, federal education funds have largely been distributed according to congressionally developed formulas; however, RTTT endowed the Department of Education with more discretionary funding than ever before and empowered the Secretary of Education to draft guidelines for the distribution of these funds. This study assesses the Department of Education’s efficacy in awarding RTTT grants to states that possessed the greatest capacity to reform their school systems and improve student achievement. An analysis of states’ scores on the National Assessment of Educational Progress indicates that student performance in states that received RTTT grants increased at a greater rate than states that were not selected for the grants.

Nicholas McClure

Faculty Sponsor: Dr. Lonce Bailey

Discussant: Dr. Alison Dagnes



Rhythm & Muse: The Art of Writing about Music

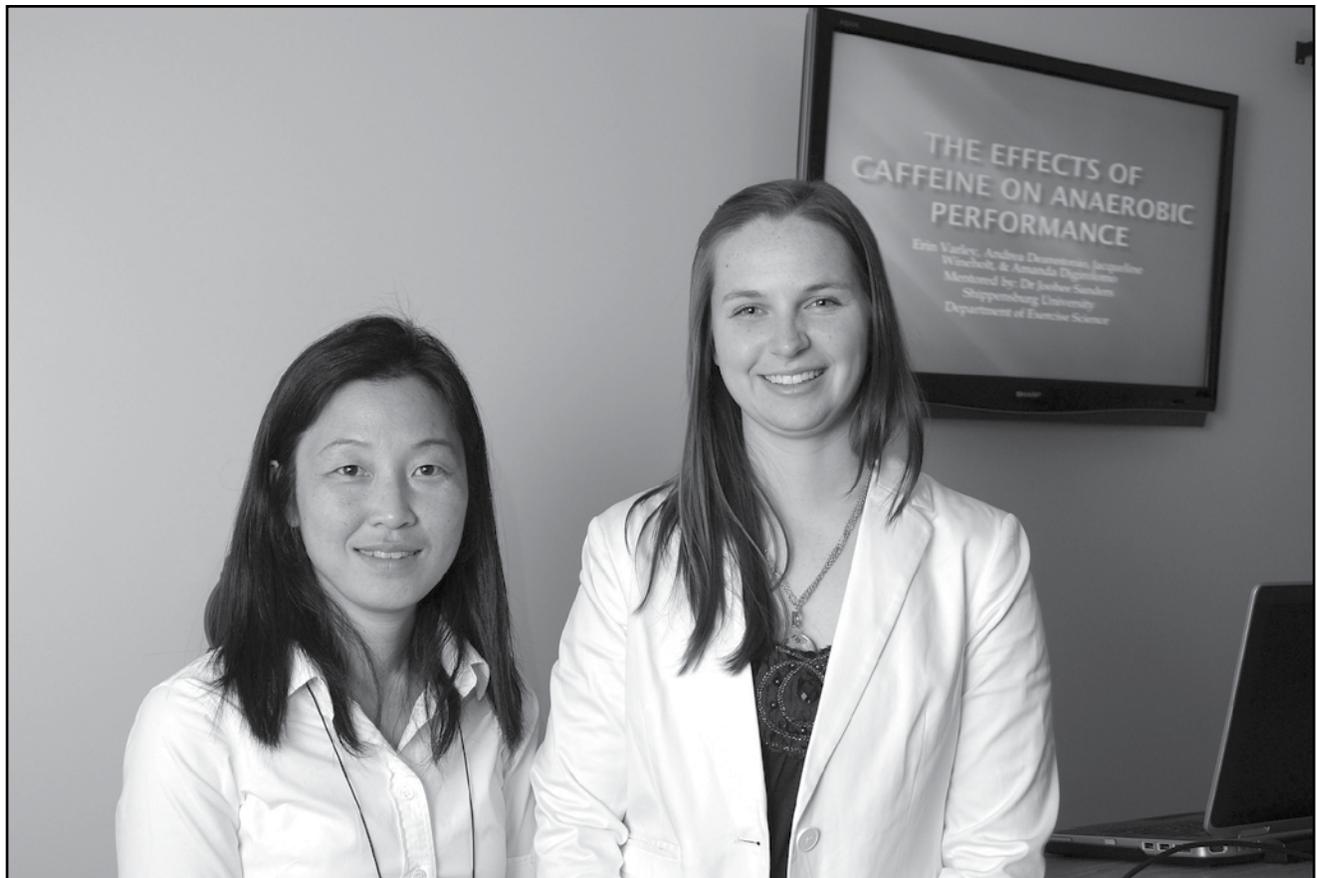
Creative writing requires inspiration, which can often be found in others’ published work. I find my inspiration in music and song lyrics—emotions and thoughts that influence me on a daily basis. This project is built from a self-created website, “Rhythm & Muse,” where I share my musical interests and discuss what I find noteworthy and interesting about chosen songs on a weekly basis. Listening to these songs enables me to find my own meaning and translate that into a new piece written from my perspective. In addition to writing regularly, this project shows the journey of finding and developing my own style and voice, elements that are displayed through structured poems, free verses, and short reviews. Creating a consistent and relatable voice that can be translated through an online platform helps me maintain readership as well as prepares me for post-graduate writing opportunities.

Amanda Sanger

Faculty Sponsor: Dr. Laurie Cella

Discussant: Dr. Alison Dagnes

INDIVIDUAL ORAL PRESENTATIONS



Communication/Journalism, Modern Languages, English

TIME: 5:30 - 7:00 PM

LOCATION: 105

Study Overtime: How Study Methods Complement Student Success

This research study will examine the relationship between the study methods that a student uses in order to prepare for an exam, and their personal feeling of accomplishment when they take the exam after implementing this method. This study will focus on student perceptions of performance in a specific class within the Communication/Journalism major. The goal of this study is to observe what study tactics help students succeed academically, as well as boost their morale.

Matthew Egelman*

Faculty Sponsor: Prof. Holly Ott

Department: Communication/Journalism



Komorebi: Creating an Undergraduate Online Literary Journal

Literary journals showcase creative writing and art that is reviewed and selected by a reading board. The question I am asking with my research is, "What makes an online journal?" On our campus we have *The Reflector*, *SpawningPool*, and *Proteus*. Through these students have the chance to review work from students here, but precludes exposure to outside work. I will be starting an online Literary Journal that would accept undergraduate student work from across America. Komorebi describes the look of light coming in through the trees a beautiful image that is rarely given any thought throughout the day. It would represent the undergraduate work that we will receive, because there is phenomenal work written outside of Shippensburg that our students do not get the chance to read. Komorebi would remain on Shippensburg University's campus to continue providing students with an avenue to acquire skills in InDesign, Word Press, and discussing diverse creative work.

Madelyn Moyer-Keehn

Faculty Sponsor: Prof. Neil Connelly

Department: English



Presenting the Fates of 'Ordinary Men.' The Wehrmacht's 35th Infantry Division as a Case Study of the German Army and Soviet Justice, 1945-1956

What happened to German prisoners-of-war in Soviet captivity after Germany's surrender in May of 1945 is an under-explored historical topic. I will be presenting on the 35th Infantry Division of the German Army as a case study of this topic. Using returnee records obtained from the Tracing Service of the German Red Cross, I reviewed the postwar biographies of close to 900 German soldiers and officers in Soviet captivity. My presentation will discuss commonalities among the prisoners' camp experiences and offer hypotheses as to why some experiences diverge. Another important insight that can be gained from these records is the frequency with which German soldiers were tried

for war crimes. My presentation will investigate how many soldiers in the 35th from my sample were convicted of war crimes, the specific charges that were brought against them and the sentence they received.

Matthew Hoffman

Faculty Sponsor: Dr. David Wildermuth

Department: Modern Languages, German Studies

Computer Science and Physics

TIME: 6:00 - 7:00 PM

LOCATION: 232

Comparisons of Improved Round Robin Algorithms

Many altered versions of the Round Robin CPU scheduling algorithm have been created to fix the shortcomings of the Standard Round Robin algorithm. When these improved Round Robin algorithms are first created, they are always compared to the Standard Round Robin algorithm to ensure that they provide an improvement over it. Occasionally, they are compared to one other improved Round Robin algorithm for comparison as well, however little work has been done to compare several of these algorithms simultaneously to observe which ones make the greatest improvements over the Standard Round Robin algorithm. This research seeks to answer this query by comparing five improved Round Robin algorithms.

Christopher McGuire*

Faculty Sponsor: Dr. Jeonghwa Lee

Department: Computer Science



Optimizing the Efficacy of Radio Telemetry Techniques in Herpetological Studies

Telemetry, which involves the use of radio equipment, is a commonly used technique in biological studies to track the movements of wild animals. The behavior of the animals and the features of their habitats limit the useful range of this equipment. The goal of this project is to optimize the usage of radio telemetry devices for a variety of ground cover and habitat features that are used by Eastern Box Turtles, as well as document the limitations of the hardware itself. The result of the research will be compiled and standardized as a method of best practice for telemetry in these settings. This will then be relayed to both undergraduate and graduate ecological researchers at Shippensburg University, who are currently monitoring this species of turtle. The research will be comprehensive and therefore useful to any researcher that uses radio telemetry to track animals that share a similar habitat.

Jordan Unger

Faculty Sponsors: Dr. Kathryn Shirk, Dr. Pablo Delis

Department: Physics, Biology

Spherical Harmonics

The purpose of this research is to measure the acoustical harmonics of an exercise ball using a Lock-in Amplifier. The spherical harmonics associated with the Hydrogen Atom is a fundamental Quantum Mechanical concept; we may map energy states of different atoms by approximating them to a Hydrogen-like model. As it turns out, the acoustical resonances of an exercise ball behave similarly to the Hydrogen atom. Thus, via mapping the acoustics of the exercise ball, we may reach a more valuable and applied understand of the Hydrogen atom. First, we will calculate the standing waves to predict the ball's resonant frequencies and angular properties. After this, we will use sound waves to excite resonances in the exercise ball, measuring and comparing frequencies to our predicted resonant properties. We will also study, using phase-sensitive techniques, scattering phase shifts and angular effects in the near-resonant regions.

Justin Wright, Jordan Unger

Faculty Sponsor: Dr. Brad Armen

Department: Physics

History

TIME: 5:30 - 7:00 PM

LOCATION: 239

Adams County and the Spanish Influenza: Local Responses to the 1918 Influenza Outbreak at Camp Colt and in Adams County

Near the end of World War I, the United States of America was ravaged by a silent and deadly enemy on its own soil, the Spanish influenza. Beginning in the fall of 1918, influenza raced across the U.S. killing an estimated 550,000 people. This research project explores the impact of this epidemic on Adams County, Pennsylvania and will focus on the responses of organizations and individuals in Adams County to the outbreak of influenza in the World War I United States Army Tank Corps training camp located in Gettysburg, Camp Colt and then the responses to the larger outbreak of influenza cases in the county. The research will address the questions, "To what extent and in what ways did Adams County organizations and residents help with the influenza epidemic at Camp Colt and in Adams County?" "What was the extent of the outbreak among county residents?" and "How does the response of county organizations and residents compare to how other communities coped with the influenza outbreak?"

Faythe Grace*

Faculty Sponsor: Dr. Steven Burg

Department: History/Philosophy

Philadelphia and Influenza Outbreak of 1918

The Influenza Outbreak of 1918 struck America with violence, killing nearly 675,000 Americans, and leaving only orphans, widowers, and tragedy behind. The United States entrance into World War I, stripped American communities of their medical professionals, thus when the virus spread throughout communities, the communities had to make do or train the medical professionals they had on hand to combat the virus. In addition, the Influenza Outbreak of 1918 seems to be forgotten about in American history, due to World War I occurring at the same time. In September of 1918, the virus spread throughout Philadelphia leaving no mercy on the people it came across. By November of 1918, Philadelphia became the hardest city in the nation, with nearly 200,000 Philadelphians being affected by the Influenza virus. This presentation will discuss how Philadelphia's medical professionals and health organizations dealt with and responded to the Influenza Outbreak of 1918.

Caitlin Hippensteel*

Faculty Sponsor: Dr. Steven Burg

Department: History/Philosophy



POW Camps in Adams County During World War II

This paper discusses how POW Camps affected economics, politics and the social classes within the Adams County area. Although the camps were temporary, they had a large impact on citizens of the county and surrounding areas.

Kathryn Shirey*

Faculty Sponsor: Dr. Steven Burg

Department: History/Philosophy



Stewart Hall History Project

The purpose of this presentation is to discuss the Stewart Hall History Project, a research project that explores the historical importance of the building and the memories of Alumni. Stewart Hall is one of the oldest buildings on the Shippensburg University campus and over the last century it served as the first gymnasium, the campus social hall, a day lounge, a dormitory, classrooms, faculty offices and a children's theatre. Over the last year the research team has conducted oral history interviews with Alumni, undertaken photographic and archival research, and produced a history of the building. The presenters will discuss the project and the ways that the research will be developed into a publication, and a museum exhibit to be displayed in the newly restored building. Student researchers will share their experiences, project findings and selections from the interviews conducted.

Taylor Mason, Devon Newcomer

Faculty Sponsor: Dr. Steven Burg

Department: History/Philosophy

POSTER SESSION I



Biology

Long Term Survey of Anuran Communities in Letterkenny Army Depot, Franklin County, Pennsylvania

Wetlands provide essential conditions for the reproduction and life cycle of anurans: frogs and toads. Anurans are bioindicators reflecting the quality of aquatic environments and particularly restored wetland ecosystems. This study is a continuation of long term research on anuran communities, which began in 2012 in Letterkenny Army Depot (LEAD), Franklin County, South-central Pennsylvania. We assess the diversity of anurans at LEAD by recording male vocalizations using automated recording systems, Froglogger, at three sites: Baker's, Twin's, and Wally's ponds. Froglogger sound files from 2014 and 2015, February to October, will be analyzed using the software Song Scope to identify and quantify species presence and temporal patterns of activity. Graphical and statistical analysis of compiled data and future results will be used to determine anuran's calling patterns, breeding periods, preferable weather conditions, and most importantly, the overall quality of the wetlands.

Jillian Onyskiw

Faculty Sponsors: Dr. Pablo Delis, Dr. Brad Armen

Poster Location: 24



Assessment of Factors Affecting Radio Telemetry Techniques Applied to Eastern Box Turtles in Letterkenny Army Depot

Radiotelemetry, a common field technique used to locate wild animals, is done by using radio waves sent from a transmitter attached to an animal to a receiver held by a researcher. This study will examine physical conditions such as depth, elevation, distance, and habitat type, which can disrupt radio signal strength, thus reducing the efficacy of this technique. Our hypotheses are that with greater depths, higher elevations, farther distances, and rockier habitats, the signal strength will be decreased. Trials will be conducted at Letterkenny Army Depot, Franklin County, Pennsylvania, where Eastern Box Turtles are currently being tracked. We will attach radio transmitters on wooden models mimicking this turtle. Then, the models will be set at locations and conditions reflecting natural turtle microhabitats, from where we will record signal strengths. Our study will benefit specifically researchers currently tracking turtles, and scientists in general that are radio tracking other taxa.

Kelly Babashan, Joshua Wright, Jordan Unger

Faculty Sponsors: Dr. Pablo Delis, Dr. Kathryn Shirk

Poster Location: 25



Assessment of Aquatic Turtle Communities in Wetlands, Franklin County, South-central Pennsylvania

Turtles are important elements of aquatic ecosystems, encompassing a large portion of the ecosystem's biomass. In Pennsylvania specifically, little is known about aquatic turtle communities. This study is a continuation of an ongoing long term project to gain additional knowledge on the turtle communities inhabiting wetlands affected by human activities at Letterkenny Army Depot, Franklin County,

South-central Pennsylvania. From May 2014 to April 2015, we used baited traps at Bud's Lake to capture turtles. Captured individuals were identified, measured, sexed, assessed for health and reproductive conditions, marked and released. Most of the turtles captured (93%) were Painted Turtles, *Chrysemys picta*, with a single juvenile Common Snapping Turtle, *Chelydra serpentina*. Among adult Painted Turtles, 67% of the captures were males. To date, our research points to an atypical low-diversity turtle community, perhaps as a result of anthropogenic stresses at this site.

Alyssa Hay, Anna Rickard

Faculty Sponsor: Dr. Pablo Delis

Poster Location: 26



Biodiversity and Demographics of a Snake Assemblage at the Shippensburg University Campus, Cumberland County, PA

Pennsylvania has 22 species of snakes. Worldwide, snake populations are threatened by anthropogenic impacts such as habitat alteration. This study, continuation of a long term project, assesses the snake community at Shippensburg University (SU), which is affected by urban and agricultural stresses. Since 2011, we deployed and checked 39 cover boards along the northeast of SU to detect snake's presence. Captured snakes were identified, measured, sexed, assessed for health and reproductive status, marked and released. By 2015, we detected four species: the Common Garter Snake (*Thamnophis sirtalis*), Northern Water Snake (*Nerodia sipedon*), Eastern Rat Snake (*Scotophis alleghaniensis*) and Milk Snake (*Lampropeltis triangulum*). The community seems dominated by the Common Garter Snake, with 90.2% of all captures, while the Milk Snakes and Northern Water Snakes, mostly along Burd Run, made up just 9.3%. This seems to be a very simple snake assemblage compared to other natural habitats in PA.

Vladimir Rep

Faculty Sponsor: Dr. Pablo Delis

Poster Location: 27



Differences in Microbial Populations as a Result of Compost Tea Applications

Soils contain many microorganisms capable of forming beneficial relationships with plants. The use of natural compounds (compost tea) instead of environmentally detrimental chemicals (fertilizers) can improve farming practices by manipulating the bacterial composition of soil. This study examined the effect of compost tea application on soil bacteria. Crops (spinach or lettuce) located at the Shippensburg University farm were treated with either water, plain tea or molasses enriched compost tea. Pretreatment, post treatment and plant rhizosphere soil samples were collected. Overall, plain and molasses compost tea treatments decreased microbial numbers. In spinach soils, molasses decreased bacterial numbers, while plain tea decreased bacterial numbers in lettuce soils. Rhizosphere control soil had the greatest number of bacteria but molasses enriched compost tea decreased bacterial numbers in the soils associated with both crops.

Laura Cowden

Faculty Sponsors: Dr. Marcie Lehman, Dr. Heather Sahli

Poster Location: 18

The Effectiveness of Propolis for Toothbrush Disinfection

Toothbrushes play a vital role in oral hygiene but when left exposed to open air, microorganisms have been shown to accumulate on their bristles. Toothbrush location, storage methods, and the survival time of different bacteria play a role in bristle colonization. Effective disinfection is important to reduce reintroduction of potentially harmful bacteria into the body. This study examined the effectiveness of propolis (a naturally occurring antimicrobial) as a toothbrush disinfectant. Sterilized toothbrushes were placed in Trypticase Soy Broth (TSB) and infected with 100 µL of various standardized bacterial inoculum. After incubation, the toothbrushes were then exposed to 10 mL of varying propolis concentrations. Ten-fold serial dilutions were performed and colony forming units (CFU) determined using Trypticase Soy Agar (TSA) and Mitis Salivarius Agar (MSA) to evaluate the effectiveness of each agent.

Kaitlyn Frey, Alaynie Aull

Faculty Sponsor: Dr. Marcie Lehman

Poster Location: 19



Determination of Control Methods for Erwinia amylovora, the Causative Agent of Fire Blight

Erwinia amylovora is the bacterium responsible for “fire blight”, a disease that affects apple and pear trees. This disease attacks the blossoms, stems, and shoots of its host until the discoloration makes the tree appear to be scorched by fire. Bacterial isolates were obtained from the Pennsylvania State University Fruit Research & Extension Center (FREC). Both a disk-diffusion assay and a broth susceptibility assay were used to test the effectiveness of different concentrations and combinations of available antimicrobial products (including commercial bacterial by-products, copper, and streptomycin) for controlling *E. amylovora* growth. Preliminary findings demonstrated that different strains of the organism demonstrated different degrees of antimicrobial sensitivity to the products tested. Of the products tested, streptomycin and copper were most effective in inhibiting growth of *E. amylovora*. Biological compounds had only a small inhibitory effect in a dose dependent fashion.

Melissa Zebekow, Samantha Winebark, Hanna Laukaitis

Faculty Sponsor: Dr. Marcie Lehman

Poster Location: 20



Sensitivity Testing of Cryphonectria parasitica, the Chestnut Blight Pathogen

Plant materials were screened, as extracts or powders, for possible physiological effects on *C. parasitica*. By placing standardized amounts of ground material or extracts into potato-dextrose agar plates on which the fungus had been growing for 3 days at 21°C in constant light. Cultures were examined for effects after 4 more days of growth. Test plant materials were chosen on the presumption that they contain secondary metabolites and included leaf, stem and root material from locally growing invasive plant species (*Alanthus*, *Pokeweed*, *Japanese Knotweed* and others); these were extracted using a petroleum ether/

acetone protocol and the extracts applied in culture. Commercially available spice materials were assayed as obtained. Various results were noted to date and the work is ongoing.

Matthew Ritts

Faculty Sponsors: Dr. Michael Marshall, Dr. Dan Predecki

Poster Location: 23



Comparative External Morphology of Integumentary Sensory Structures of Four Species of Microdon (Diptera: Syrphidae)

Utilizing scanning electron microscopy (SEM), external morphology of four species of *Microdon* (Diptera: Syrphidae) (*Microdon albicomatus*, *M. cothurnatus*, *M. piperi* and *M. xanthopilus*) was examined. Specifically puparia and larval specimens were described and photographed. Major puparial characteristics and external features such as marginal bands, tubercles, and sensilla are a focus of comparison between species to be used for identification of early stage individuals. Using SEM allows distinctions between species to be made on a highly magnified scale to ensure accurate identification of the specimens.

Brandi Keppel

Faculty Sponsor: Dr. Greg Paulson

Poster Location: 21



An Investigation into the Morphology of Psocoptera Using a Scanning Electron Microscope

The order Psocoptera includes insects known commonly as booklice. Psocids are marked specifically by their unique morphological features of the mouth. These modified mandibles contain rod-shaped portions of the maxilla that assist and stabilize the insect while feeding. As well, certain species within Psocoptera contain silk glands located in the mouth, which are heavily obscured from view. Presently, in depth visual representations of their unique morphological features is lacking. In this investigation, psocids will be prepared using critical point drying methods to preserve the integrity of all organic tissues. The specimens will then be examined using the scanning electron microscope (SEM) in order to identify and photograph the unique morphological structures of the order. Results of SEM photography of Psocids show those obscured structures of the maxilla and mandibles, alongside more readily visible structures such as the wings, eyes, and legs.

Spero Skarlatos

Faculty Sponsor: Dr. Greg Paulson

Poster Location: 22

Effects of Compost Tea Extract on Lettuce and Spinach Growth

With the growing trend of buying organic produce, farmers are looking for a more natural way to fertilize their crops without the use of synthetic chemicals. Many studies show that the use of compost tea can achieve this benefit. We tested whether two types of compost extracts affected plant growth. Lettuce and spinach plants were treated with either water, plain compost tea, or with compost tea with added molasses. Plants were then harvested and fresh and dry biomass were weighed to determine growth compared to that of the control. Neither of the compost tea treatments had an effect on spinach growth, while compost tea with molasses decreased lettuce growth. Our findings suggest that plain compost tea provides no benefit for plant growth. Furthermore the addition of a sugar substrate was detrimental to crop yield. Further research is needed to determine the best preparation of compost tea as well as what added substrates or nutrients can improve plant growth.

Lindsay Boykin, Kera Wagner, Laura Cowden

Faculty Sponsor: Dr. Heather Sahli

Poster Location: 17

Chemistry

Quantitative Analysis of Hydrocortisone Levels in Human Saliva Due to the Effects of Positive and Negative Stressors

Hydrocortisone, also known as cortisol, is a steroid hormone which is produced in the adrenal cortex. Cortisol is released in response to physical and psychological stress. This project was designed to use chemical techniques to determine cortisol levels present in an individual due to the effects of positive and negative stress. Cortisol was extracted from samples of human saliva that were collected during stress-related experiments, and the levels of each sample were quantified through the use of an ELISA. Statistical analysis was used to determine changes in cortisol levels resulting from various types of stressors. The importance of this research lies in its ability to indicate whether a physiological difference exists between positive and negative stress. This information can be a useful asset in many situations to better motivate individuals and groups in the workplace.

SaraBeth Riley, Hannah Greenberg

Faculty Sponsor: Dr. Robin McCann

Poster Location: 9



Synthesis of Single-Molecule Magnets with Varying Carboxylate Anion Bridges and Analysis of Magnetic Properties of Lanthanide-Manganese Metallocrowns

Numerous metallocrown (MC) complexes with varying metal centers have demonstrated single-molecule magnet (SMM) behavior. Recently we reported the first 12-MC-4 complexes with lanthanide ions in the central cavity. For charge neutrality, an alkali metal ion (sodium or potassium) was also bound to the central cavity. To investigate the magnetic behavior of these molecules we have varied the bridging carboxylate anion and kept the ring metal ion constant as manganese and the central metal ions constant as dysprosium and sodium. The resultant structural and magnetic properties will be explored and modeled. Variance of the carboxylate bridges, while maintaining

constant ring and cavity metals, will ensure that any structural and magnetic properties will be the result of the carboxylate anion. The magnetic coupling constants between the ring and cavity metals will be determined and matched to those of prior MC complexes that have demonstrated SMM behavior.

Connor Daly

Faculty Sponsor: Dr. Curtis Zaleski

Poster Location: 10



Investigation of the Solution Stability and Lanthanide Ion Selectivity of 12-Metallocrown-4 Molecules

This presentation will discuss the solution stability of the YNa[12-MCMn-4] molecule and its ability to selectively bind lanthanide ions. Thus far the molecule has proven stable in a methanol water mixture for several days. With our collaborator Dr. Matteo Tegoni and his students at the University of Parma, we will investigate the ability of the yttrium molecule to selectively bind various lanthanide ions in competitive solution studies.

Jordan Travis

Faculty Sponsor: Dr. Curtis Zaleski

Poster Location: 11

Communication/Journalism

What Does the Public Really See?

The role of public relations in building a corporate image is to help set a company apart from every other corporate organization. Public relations is needed to help build brand recognition and brand awareness to help develop brand loyalty amongst consumers. To help build this brand image, public relations strategies include community service projects and partnering with charitable organizations. By using these public relations strategies, corporate organizations are able to market their brand and their products to the consumer on a more relatable standpoint. Arguably, the more socially responsible the public relations strategy is, the more people will be able to associate the organization with a positive brand image. A survey questionnaire will be administered to measure consumer feelings and attitudes towards socially responsible companies.

Marni Baluta*

Faculty Sponsor: Prof. Holly Ott

Poster Location: 28



How Mobile Media Has Changed the Way Journalism Companies Operate

The evolution of technology, particularly mobile media, has done so much for the human population. It gives us the ability to receive our news on the go and the ability to not have to wait until a certain time of day to learn about what is going on in our local community or the world. This growth, while a positive thing for the consumer, has become something that has caused journalism companies to have to make the necessary adjustments in order to continue to be relevant. This research study will look at how journalism companies have been affected by the growth of mobile media and whether or not it has had positive or

negative influences on the company. A survey will be administered to professional journalists to garner how this growth has forced them to adjust their writing style and their publishing and editing styles.

Brian Dankulich*

Faculty Sponsor: Prof. Holly Ott

Poster Location: 29



So Connected it Hurts; Electronic Devices and How They Control the User

The purpose of this research is to examine the topic of electronic devices and the toll they are taking on their users. Previous research suggests would suggest that cellphones, tablets, and computers are great tools and necessary in this day and age. The research will explore the negative effects of having “text neck” and other issues related to electronic usage and the amount of time spent each day consuming media from these devices. This study will explore the amount of disconnection a user may feel due to fulfilling one’s social interaction via the web instead of face-to-face communication. This study explores the social perception of the issue by conducting a survey of Shippensburg University students who use electronic devices.

John Irwin*

Faculty Sponsor: Prof. Holly Ott

Poster Location: 30



Social Media as Effective Communication Tools for All-Volunteer Nonprofit Organizations

You don’t have to tweet or pin to know that social media is ingrained in American society. Facebook, Instagram and other social platforms are how increasing numbers of people keep in touch with friends, get their news, share vacation photos, support their favorite causes, and much more. The ever-growing list of social media sites gives users lots of choices—and gives nonprofit organizations lots of headaches. Today’s fractured media landscape means getting a news release in the local paper or an ad on the radio is no longer enough. How do all-volunteer nonprofits with limited resources decide which platforms to use to effectively reach their communities? This study uses a questionnaire to survey Shippensburg area residents about their social media usage—not just how often they use social sites, but how they use them—to assist a local nonprofit in refining its communications efforts.

Carolyn Seibert-Drager*

Faculty Sponsor: Prof. Holly Ott

Poster Location: 31



Persuasive Media and Worldview: The Influence and Perception of Mass Media Agenda Setting

Mass media agenda setting is often difficult to identify and measure, and is frequently viewed subjectively. The influence of agenda setting, however, can drastically affect public opinion. This study will attempt to quantify and measure the impact of agenda setting by the mass media. The study will also examine possible influences of pervasive mass media agenda setting, such as education, media vehicle and media consumption. The research will also attempt to reveal patterns

of growth and issue interest in news media as well as trends of news origins. Another goal of the research is to identify participants’ self-perception of mass media influence as well as the relation to recall and actual influence. The method for this study includes a survey of current Shippensburg University students. The purpose of this study is to bring awareness of the current levels and variance of media pervasiveness and perception among a controlled sample.

Ethan Weidman*

Faculty Sponsor: Prof. Holly Ott

Poster Location: 32

Economics

Can You Predict a NBA Team’s Winning Percentage Using Statistics?

The objective of this paper was to find out what National Basketball Association (NBA) statistics can effect a team’s winning percentage. Unlike most of the previous studies advanced statistics were used in this regression model. The data used was found online at the NBA’s website nba.com. Through panel regression analysis using the statistical program STATA we discovered that there are three statistics that are statistically significant to the winning percentage for any team. Those statistics are assist percentage (astp), offensive rebound percentage (orebp), defensive rebound percentage (drebp).

Philip Donohoe

Faculty Sponsor: Dr. Freddy Siahaan

Poster Location: 7



The Cost of Alcohol: Binge Drinking and Crime

Excessive alcohol use is more often than not associated with unruly behavior and crime. This study’s focus is binge drinking’s effect on crime. All data was collected from the National Longitudinal Survey of Youth 1997. Using an XTPROBIT model, it was found binge drinking is positively correlated with stealing less than \$50, stealing more than \$50, attacking someone with the intent to seriously injure, and property destruction. The general consensus of other studies is raising taxes as the most effective way to reduce alcohol consumption. If the government wishes to lower crime rates, reducing excessive alcohol consumption may help.

Nathaniel Foster

Faculty Sponsor: Dr. Freddy Siahaan

Poster Location: 8

English

Losers Win: An Analysis on the Effects of Participation Awards on Children

Across the nation, awards are flooding into classrooms and youth sports. Parents and coaches yearn to teach children to love sports and school, by praising them simply for their attendance. Praise is necessary to the growth of a child or adolescent, however praise should be based on effort. Current research on participation awards focuses on the effect of personal versus process praise. Praising children for their intelligence, talent, or attendance rather than their effort has negative consequences; superfluous awards contribute to that. While teachers, coaches and parents should award students with praise, praise based solely on participation has gone too far. Distinguishing winners and losers in today's society is essential, for it rewards effort rather than attendance. As a result of my research and experience, I argue that participation awards should be discouraged, and awards for effort should be encouraged in order for today's children to thrive in our ultra-competitive society.

Cody Olson

Faculty Sponsor: Dr. Sharon Harrow

Poster Location: 34

Exercise Science

Healthy Eating Adventure: The Outcomes of Eating a Plant Based Diet

Diets are designed to serve a variety of purposes such as promote weight loss, increase energy levels, and improve health. Plant-based diets are those that are high in fruits, vegetables, nuts, whole grains, and legumes while prohibiting meat and dairy products as well as some oils. Kent et al. (2013) examined metabolic syndrome factors [total cholesterol (TC), low-density lipoproteins (LDL), high-density lipoproteins (HDL), triglycerides (TG), and fasting plasma glucose (FPG)] after applying a 30 day plant-based intervention diet to their subjects. The diet resulted in a 13% decrease in LDL as well as an 11% decrease in TC (Kent et al. 2013). Some concerns exist with plant-based diets because of the omission of complete proteins and lack of bone relevant nutrients that the body needs to develop properly. The purpose of this study was to determine if plant based diets positively impact health related measures including blood lipids, BMI, body composition and blood pressure.

Raquel Dovalos, Alicia Mease, Alyssa House, Alexandra Parks

Faculty Sponsors: Dr. William Braun, Dr. Joohee Sanders

Poster Location: 12



Assessment of Functional Fitness Measures Among Community-Dwelling Older and Younger Adults

A loss of power over time is a key predictor of future mobility disability, increased fall risk, and decreased independent living. The purpose was to compare young adults (CON), low power (LP), and high power (HP) older adults on selected functional fitness (FF) assessments. Fifty-nine older and 20 young adults completed the FF tests: power stair climb (PSC), habitual 20m walk (HW), 30-s chair stand (CS), and 8-foot

up-and-go (UPGO). Relative power for the PSC was used to create the two power groups: low and high. A one-way ANOVA yielded a statistically significant difference among the groups on UPGO ($p > .01$) and CS ($p > .01$) and between the LP and CON and LP and HP on the HW ($p < .01$). No difference was found between CON and HP ($p = 1.0$). Although the LP performed the HW at their age-predicted normal range, the HP group walked 17% faster. Community-dwelling older adults with greater relative power walked faster, performed more CS, and completed the UPGO quicker than the low power group.

Serena Cox

Faculty Sponsor: Dr. Sally Paulson

Poster Location: 13



Texting & Walking: A Dual-Task Study on Gait Patterns in a College-Aged Sample

The purpose was to examine the effects of texting and walking on selected gait parameters between males and females in a college-aged sample. Twenty-one subjects (females $n=14$, males $n=7$) volunteered to walk through a mock intersection under two conditions: walking without texting (CON) and texting while walking (DT). Two trials were performed for each condition and the order was randomized. Selected kinematic gait variables were measured using a gait mat and differences in time were measured using a digital timing system. The results of the study showed that there was not any significant difference between sex for the measured gait variables ($p > .05$), but there were differences between conditions. The results showed gait speed was significantly lower ($p \leq .05$) in the DT condition, suggesting both males and females walked slower through the mock intersections. The study concluded sex was not a factor in the gait parameters being negatively influenced by the DT condition.

Sara Long, Kathryn Betz, Amanda Barton, Morgan Brockman

Faculty Sponsor: Dr. Sally Paulson

Poster Location: 14



Association of Muscular Power and Selected Gait Parameters in Community-Dwelling Older Adults

The purpose was to examine the relationship between peak power (PP) and peak velocity (PV) with selected gait parameters among older adults. Twenty-three subjects completed a series of five power chair stands and two habitual walking trials. Subjects were asked to stand as quickly as possible from a seated position. A Tendo weight lifting analyzer was used to measure peak power (PP) and peak velocity (PV) during each chair stand. During the walking trials, subjects were asked to walk 20 m at their usual walking pace. Gait speed (GS), step length (SL), step frequency (SF), and double support time (DST) were measured. There was a significant relationship between PP and GS ($r = .49$, $p = .02$) and PP and SL ($r = .55$, $p = .01$). PV and GS ($r = .56$, $p = .01$), and PV and SL ($r = .58$, $p = .004$) were also significantly related. These results suggest older adults with greater power and velocity during a chair stand task tend to walk faster and have a longer step length.

Heather Schmuck

Faculty Sponsors: Dr. Sally Paulson, Dr. Joohee Sanders

Poster Location: 15

Blood Lactate Levels and the Effects of Recovery Methods on Repeated Sprint Performance

The purpose of this study was to examine the difference in effects of cold water immersion, active recovery, and passive recovery on blood lactate levels after successive bouts of sprinting. The eight subjects for this study had a mean age of 21.5 ± 1.31 years, weight of 81.25 ± 15.39 kg, and mean height of 181.45 ± 9.68 cm. Each subject was required to test on three different days, each day consisting of a different random recovery modality. Subjects completed a 400m and 200m sprint for each day of testing; in which blood lactate, heart rate, and performance time measurements were recorded. A two-way and one way ANOVA with repeated measures was used to analyze the data to determine any significant differences. There was no significant difference shown between the recovery modalities on all 3 variables: lactate ($p = .21$), heart rate ($p = .70$), and performance time ($p = .30$). The data does not suggest an advantage for any of the 3 recovery methods.

Joe Todora, Brandon Augustine, Nathan Jendrzewski, Zackory Price, Ben Smith

Faculty Sponsors: Dr. Sally Paulson, Dr. William Braun
Poster Location: 16

Geography/Earth Science

Aquatic Subterranean Invertebrate Fauna in Springs and a Cave in the Carbonate Region of the Cumberland Valley in South-central Pennsylvania

Subterranean aquatic ecosystems provide unique opportunities to study organisms that live in relatively contained and isolated systems. Recently, studies have focused on the use of groundwater organisms to monitor water quality and determine connections to surface water sources. This study focuses on three springs, a cave, and several surface streams in the carbonate region of the Cumberland Valley in South-central Pennsylvania. This study documents subsurface organisms and examines the feasibility of using subterranean aquatic fauna as basic tracers for connections to surface waters. The study also explores whether abundances of fauna are affected by changes in hydrologic conditions and various water quality parameters. Initial results from passive flow samples show a direct connection of the study cave stream to surface water. Initial results also suggest that invertebrate abundances from the study springs vary depending upon the hydrologic condition of the system.

Sarah Bartle*

Faculty Sponsor: Dr. Thomas Feeney
Poster Location: 39



Historical Sources of Domestic Water in Cumberland County, Pennsylvania

The absence of surface streams in Pennsylvania's Cumberland Valley is a result of the limestone topography (karst). A need existed for an immediate water supply to be available when these homes were built, and drilling for groundwater was not conventional for most rural homeowners at the time, as traditional well-digging techniques of the era would have found the limestone bedrock very difficult to excavate. Springs must have served as domestic water supplies for some of these

homes. Using GIS technology to georeference historic maps (pre 1860) of the study area will allow for a visually-enhanced understanding of how bedrock geology influenced spring formation, and why some homes were built in a particular geographic point. Mapping historic homes may identify small springs that are not currently included in the geologic and geographic literature.

Trey Miller

Faculty Sponsor: Dr. Thomas Feeney
Poster Location: 46



Urban Heat Island Effect of Shippensburg, Pennsylvania

Shippensburg is located in the south-central region of Pennsylvania. The population of the town is about 5,500 and it has a small area of about two square miles. Shippensburg is located relatively close to Harrisburg, Pennsylvania and Hagerstown, Maryland. The urban heat island (UHI) effect is often observed in these larger metropolitan regions; however Shippensburg is under a small influence of an urban heat island. A UHI is a metropolitan region that is warmer than the surrounding areas, which is a result of human activities, such as creating more reflective areas from having buildings which the rural surrounding areas do not have. Using infrared camera, images were taken over a 24 hour period to see how the heat fluxes in and around the town. This was a preliminary study to see how large of a scale the cameras can assess.

Samantha Rimbey

Faculty Sponsor: Dr. Timothy Hawkins
Poster Location: 43



Establishing a Sky Glow Quality Value for Shippensburg, Pennsylvania

The purpose of this study is to establish a quality value of the night's sky above Shippensburg, Pennsylvania. Artificial lighting from street lamps and flood lights causes a horizon glow to occur as light is scattered through the atmosphere. This glow disrupts the viewing of cosmic bodies such as the Milky Way and has negative ecological consequences on natural cycles. The Bortle's Dark Sky Scale was one method used in determining the health of the night's sky. This is done by assessing various constellations to see if they are still visible. A second method used was the use of a sky quality meter to get readings in magnitudes/arcsecond². Using multiple locations in and around Shippensburg, it is expected that the quality of the night's sky will increase with distance away from artificial light sources.

Carl Seils

Faculty Sponsor: Dr. Timothy Hawkins
Poster Location: 45

A Typology of Pennsylvania Municipalities

With over 2,500 municipalities in Pennsylvania, most of the government authority is on the local level. It's important to have an understanding of the communities' demographics, economic, and social profiles. This research project is focused on identifying factors that with a factor analysis run, will create a typology of similar communities. A database that has the communities' data with similar types of municipal government will be run through SPSS. Using factor analysis, a typology of archetypical communities can be mapped using ArcGIS to provide a visual of the similar communities. A literature review and visuals of the certain factors will be used to explain the process and the outcome of factorial and cluster analysis.

Paul Clelland

Faculty Sponsor: Dr. George Pomeroy

Poster Location: 38



Overpopulated States if State Populations were Self-Sufficient

The purpose of this study is to see if the population of the state can be self-sufficient based on the area of the state. The study is going to assume that the population is made up of families of four. The study is going to use 2 acres of land. These 2 acres of land comes with solar panels, sources of meat, eggs, dairy, vegetables, fruits and grains. If the family were willing to buy flour instead of growing wheat they would only need 1.5 acres of land. The process of this study will show which states can be self-sufficient or which states couldn't be.

Alex Moore

Faculty Sponsor: Dr. Janet Smith

Poster Location: 40



Effects of Climate Change on Winter Weather in Shippensburg, Pennsylvania

Shippensburg, Pennsylvania is found in a humid continental climate system. There are four distinct seasons throughout the state. Winter is a long process in south-central Pennsylvania and feels as if it is constantly becoming worse over the years. Snowfall amounts and temperature are two major factors in the winter weather phenomenon in Pennsylvania. Monthly snowfall and temperature data from November to March were collected from the Shippensburg University Weather page from the year 1985 through 2014. A statistical analysis, as well as a graphical analysis of the data was conducted. For future research, more data can be collected, making a larger sample size. Also, a more in-depth statistical analysis of the data can explain more trends between the data. Climate change is seen as affecting large scale metropolitans; however, Shippensburg is observing changes as well.

Samantha Rimbey

Faculty Sponsor: Dr. Janet Smith

Poster Location: 44

Cultivating Urban Food Security and Ecological Enrichment in Harrisburg, Pennsylvania: A Model Creating Annual, Perennial, and Food Producing Gardens on Vacant Lots

This study determines potential provisions resulting from the installation of annual, perennial, and food producing gardens on the vacant lots of Harrisburg City. A focus on ecological regeneration and food production informs the design of interconnected, green corridors in place of vacant, urban lots. This research, mapping, and design utilizes data from Dauphin County Geographic Information Systems, GIS mapping software ArcMap, Adobe Illustrator, and on-site analysis to create maps depicting garden installations in place of the vacant lots. The resulting provisions, including pounds of food and generation of native pollinator habitat, are determined as a means to establish a model of food security and ecological enrichment for the city of Harrisburg.

Shannon Sylte

Faculty Sponsor: Dr. Janet Smith

Poster Location: 47



The Whole Foods' Strategy: A Demographic Analysis in the Mid-Atlantic Region

Whole Foods Market is an organic supermarket chain that specializes in selling and distributing over 2,600 organic food and products, along with having their own brands. It has about 400 stores in the United States, 10 in Canada, and the 9 in the UK, with its main headquarters located in Austin, Texas. When planning on where to place a Whole Foods Market, there must be a strategic plan to target certain areas and groups of people. Specifically looking into the Mid-Atlantic Region, a demographic and census analysis will be conducted within 20 miles of each Whole Foods Market, looking into the age, race, income, and several other demographic categories.

Jillian Jarboe

Faculty Sponsor: Dr. Janet Smith

Poster Location: 48

History/Philosophy

Motivations for the End of the Ming Treasure Fleets

Ming China is famous for the seven naval voyages of Zheng He, a eunuch that served the emperor Yongle. His voyages lasted from 1405 to 1433, increasing both in size and range. Through these voyages, Ming China's overseas trade grew, as well as its prestige in the region. However, after Yongle's death only one new expedition was sent out, after which the entire project was cancelled. Zheng He's expeditions are one of the most impressive feats undertaken by humanity, so why then were they so abruptly cancelled? While many sources emphasize the fact that the voyages were not cost effective as a main reason for the cancellation, and others state that it was due to the threat of a possible Mongol resurgence in the north, the main reason that the voyages were ended was due to internal politics.

Josh Coffey

Faculty Sponsor: Dr. Christine Senecal

Poster Location: 35

Eudoxus as a Pivot to Greek Astronomical Focus

The Eudoxan model of Homocentric Spheres marked a turning point in the focus of Greek astronomy; thought at the time moved from cyclic calendars to the motion of the heavens and the quantification of celestial bodies and their positions. Greek astronomers who came after Eudoxus were directed by the Eudoxan model. The Eudoxan model became yet more crucial to the shift in Greek astronomical thought with its second modifications made by Aristotle. With the idea of Aristotle's unmoved mover, these modifications converted the model from one meant to quantify apparent movement to a physical model explaining the actual movement of the stars and planets. This paper will argue that though Aristotle is undoubtedly one of the most influential thinkers of the time, Eudoxus is the one who refocused Greek astronomy to a more quantitative analytical field of study.

Curtis Lamp

Faculty Sponsor: Dr. Christine Senecal

Poster Location: 36



One Man's Sacrifice: John Joseph "Joe" Pinder Jr.

John J. Pinder Jr. was a radio technician in the United States Army from Burgettstown, Pennsylvania. My project focuses on his astounding actions on D-Day that led to his death. The project will also explore how his sacrifice led to his posthumously receiving the Medal of Honor. Finally, the project will document how he has been remembered since the war.

Emily Keating

Faculty Sponsor: Dr. Mark Spicka

Poster Location: 37

Management/Marketing

When Managers Do Memory: Managing Collective Memory within Organizations

The purpose of this paper is to introduce the concept of collective memory and memory work into the organizational literature, specifically discussing memory work performed by organizational leaders and its effect on organizational identity. We begin by introducing and defining collective memory and memory work by reviewing relevant research on the topic. This is followed by a discussion of organizational identity and managers' roles in shaping it. Next, we propose that the management of organizational identity is one of the key roles of organizational leaders, and that this objective is often pursued through the management of organizational members' collective memory of organizational events. We explore these hypotheses through both quantitative and qualitative methods. We examined 100 letters to shareholders of a sample of S&P 500 companies. Results show the frequency and character of memory work usage in these executive communications.

Shelby Stachel

Faculty Sponsor: Dr. Nathan Goates

Poster Location: 41

Personality Predictors of Positive

Affect: A Study of ROTC Students

It is well understood that positive affect predicts a wide variety of desirable, individual and organizational outcomes. The United States Army has an interest in creating as much positive affect as practicable among its service members. Two personality characteristics, agreeableness and openness, and optimism are investigated as predictors of positive affect among ROTC Cadets. Findings of this study provide evidence that agreeableness and optimism are significant predictors of positive affect.

**Erin Dougherty, Lauren Burkhart, Daniel Hill,
Chris Littlejohn, Andrew Park**

Faculty Sponsor: Dr. M. Blake Hargrove

Poster Location: 42

Mathematics

Study of Genetic Algorithms Using a Computer Game

2048 is a very popular and addictive game app; the goal of my work was investigating if the genetic algorithm approach could be used to find an optimal strategy for playing the game. Though the genetic algorithm approach is more successful than using random moves to play the game, the random elements built into the game severely limit the usefulness of this approach as the environment in which the strategy evolved is constantly shifting. Varying the randomness provides a scale for measuring this effect. As the game becomes significantly less random, the genetic algorithm approach becomes significantly more successful. The algorithms in this project were coded in JavaScript and Mathematica.

Nicholas Bilchak Stroughair

Faculty Sponsor: Dr. Douglas Ensley

Poster Location: 6



Fixing Pennsylvania's School District Funding

PA school funding has been wrongly distributed to school students in the past ten years, due to the fact that PA is one of the few states that does not have a mathematical formula for the distribution of education funding from the state. In our research, we explore why the current funding method favors certain school districts over others, and why PA needs a mathematical formula to ensure this district equality issue. To solve this unequal and unfair opportunity to get more funding for a specific district, we constructed a formula to use for appropriate school funding that accounts for factors that the current method does not. We then applied this formula to local school districts to see what changes would occur.

Matthew Welsh, Brandon Weiser

Faculty Sponsor: Dr. Ben Galluzzo

Poster Location: 3

Ebola Eradication Strategies Using Math Modeling Techniques

The World Health Organization (WHO) declared the Ebola outbreak in West Africa a Public Health Emergency of International Concern in August of 2014. The 2015 COMAP math modeling competition presented groups with the task of eradicating the Ebola virus – given that the fictitious “World Medical Association” had created a new medication that cures individuals with Ebola and prevents individuals from contracting the Ebola virus. Our group decided to take on this challenge and attempt to solve a real-world, globally impactful problem. Using math-modeling techniques we formulated a strategy to eradicate Ebola from three West African countries. We used parameters to define our strategy and used several conditions to justify our decisions. Our strategy included realistic funding, feasible transportation of medication and health workers, and completed vaccination of the majority of the populations of the three main countries within a realistic timeline.

Ashley Seyler, Patrick Wells, Samantha Nelson

Faculty Sponsor: Dr. Ben Galluzzo

Poster Location: 4



Coffee Wars: Bringing Data About Real World Competition into the Math Classroom

The recent addition of a Dunkin’ Donuts cafe to the Shippensburg University campus was welcomed by many students, faculty, and staff. However, behind the scenes personnel wonder what the effect of this added competition will have on the Starbucks cafe, which has been operating on the campus for seven years. For example, questions such as: “are more individuals purchasing coffee and/or food from the university?” and “will Starbucks on campus lose business?” are being asked. With Common Core Standards in many states, math teachers are under pressure to incorporate real world connections into course curriculum. This study, a data driven exploration on the effect of competition, provides background for numerous applications of math appropriate for students in algebra and introductory statistics courses and addresses questions that matter. This poster will cover the data collection process, some preliminary results, and sample lessons developed from this study.

Mary Long

Faculty Sponsor: Dr. Ben Galluzzo

Poster Location: 5

Modern Languages

La Culpabilité et la honte dans la littérature de la diaspora haïtienne au XXe siècle

Ce projet a pour objectif d’explorer la culpabilité et la honte en tant que constitutives de l’identité dans le contexte de la littérature de la diaspora haïtienne. Trois modalités de la honte et de la culpabilité apparaissent à travers les textes sélectionnés. Dans *A Wall of Fire Rising (Un Mur de feu s’élève)*, Edwige Danticat évoque la honte éprouvée par les Haïtiens opprimés vis-à-vis de leurs ancêtres qui se sont battus pour l’indépendance de la nation, et leur culpabilité de n’avoir pas pu bâtir une nation répondant à l’idéal de liberté proclamé en 1804. Dans *Departure*

Lounge de Nadine Pinede, *Which One* d’Evelyne Trouillot et *L’Enigme du retour* de Dany Laferrière, la honte et la culpabilité se trouvent liées à la distance, tant physique que psychologique, qui sépare l’exilé de son pays natal. Cette distance, que l’émigré lit dans le regard accusateur de ses compatriotes restés au pays, creuse le sentiment d’aliénation auquel se mêle la honte d’avoir fui et la culpabilité d’avoir abandonné les siens. *Amour, colère, folie* de Marie Vieux-Chauvet et *Les Enfants de la mer* d’Edwige Danticat illustrent la honte de l’individu qui a trahi ses principes moraux par impuissance face à la férocité de la dictature, et la culpabilité de refuser assistance à autrui. La pensée de la Négritude, en partie inspirée par l’histoire d’Haïti, servira de cadre théorique à cette étude, notamment à travers le concept de la honte du colonisé tel qu’Aimé Césaire et Frantz Fanon l’élaborent. Au terme de cette étude, nous espérons montrer comment la honte et la culpabilité, ainsi qu’elles apparaissent dans les textes choisis, proviennent de la fracture identitaire née de l’expérience de l’exil, et finalement permettre de mieux comprendre ce qu’implique le fait d’“être ou ne pas être” haïtien.

Guilt and Shame in the Literature of the Haitian Diaspora

The goal of this project is to explore guilt and shame as constituent components of identity in the context of the literature of the Haitian diaspora. Those feelings are explored from three primary perspectives within the selected texts. In *A Wall of Fire Rising*, Edwige Danticat evokes oppressed Haitians’ feeling of shame provoked by the memory of their ancestors who fought for the independence of their nation, and the guilt that those in the twentieth century felt at not having been able to build a nation which can hold itself responsible to the ideals of liberty proclaimed in 1804. In *Departure Lounge* by Nadine Pinede, *Which One* by Evelyne Trouillot and *L’Enigme du retour* by Dany Laferrière, guilt and shame are intrinsically linked to the distance, as much psychological as physical, which separates the exile from the country of his birth. This distance, which the emigrant sees in the accusing look of his compatriots who remained in Haiti, only heightens his awareness of the alienation he experiences, equal parts of which are manifested in the shame of having fled the country and the guilt of having abandoned those close to him, his loved ones and his country. *Amour, colère, folie* by Marie Vieux Chauvet and *Les Enfants de la mer* by Edwige Danticat clearly illustrate the shame of the individual who has betrayed his or her moral principles by displaying cowardice and impotence in the face of the ferocity and brutality of the dictatorship and the guilt of having refused aid to others in the same situation. Finally, the literary and sociological concept of Négritude, which was partly inspired by the Haitian experience, will serve as a theoretical framework of this study, principally through the concept of the shame of the colonized as Aimé Césaire and Franz Fanon examined in their work. Through this study, I hope to show how guilt and shame, as they appear in the selected texts, derive from the fracture of identity, itself born from the experience of exile and, finally, to allow for a better understanding of what exactly it means to be or not to be Haitian.

Andrew Hutchinson

Faculty Sponsor: Dr. Blandine Mitaut

Poster Location: 2

Political Science

*Champions of Advocacy:
A Fifty-Year Perspective of Adult
Education and Workforce Development*

You can be an advocacy champion! Results of a research project is presented by this poster that provides a historical account of policy development for adult education and insight into the background of the federal Workforce Innovation and Opportunity Act. The project focuses on the role of advocacy in policy shaping. Taking perspective from both a political lens and a practical standpoint the project explores how Adult Education and Workforce Development programs have evolved from legislative policy to agency practice. Information regarding current movement in the area of workforce development along with forecasting of adult education and workforce trends will also be presented through visual charts and diagrams. Principles of effective advocacy are highlighted. The most valuable strategies for advocacy are presented including social media examples.

Melvina Steinbacher*

Faculty Sponsor: Dr. Alison Dagnes

Poster Location: 1

Physics

*Developing a Protocol for Creating Microfluidic
Devices with a 3D Printer, PDMS, and Glass*

Microfluidics research requires the design and fabrication of devices which manipulate small volumes of fluid. These devices are used for a wide range of applications including the assembly of materials and testing of biological samples. Many methods have been previously developed to create microfluidic devices, including traditional nanolithography techniques. However, these traditional techniques are cost-prohibitive for many small-scale laboratories. This research explores a relatively low-cost technique using a 3D printed master, which is used as a template for the fabrication of polydimethylsiloxane (PDMS) microfluidic devices. The masters are designed using computer aided design (CAD) software and can be printed and modified relatively quickly. We have developed a protocol for creating simple microfluidic devices using a 3D printer and PDMS adhered to glass. This relatively simple and lower-cost technique can now be scaled to more complicated applications.

Robyn Collette, Eric Novak

Faculty Sponsor: Dr. Kathryn Shirk

Poster Location: 33

POSTER SESSION II



Academic Services

Shared Spaces: Examining Writers' Perceptions of Safe Spaces and Ability to Achieve Writing Goals

Writing centers should be comfortable environments for students to develop ideas, gain confidence, improve skills, and collaborate with peers. Institutional location, physical configurations, and writing center shared spaces may impact students' ability to reach goals. Our Learning Center houses the writing center, content tutoring, and academic recovery programs in a shared space. Creating a private space for writers to share work can be challenging amongst the noise and distractions. The Writing Studio also offers online tutoring that appears to enhance students' comfort, but virtual shared spaces may also amplify silent moments and decrease writers' comfort as they process information. Comparing writers' perceptions about each space and their ability to achieve goals helped us understand environments that enhance comfort and goal achievement. Given our configurations, we researched the impact of virtual and physical shared spaces upon writers' ability to achieve writing goals.

Ariel Slotter*, **Adrienne Williams***, **Jessica Weidner***,
Peter Scheer*

Faculty Sponsor: Dr. Karen Johnson
Poster Location: 4

Biology

Ecology of the Northern Black Racer (Coluber constrictor constrictor) in South-central Pennsylvania

The Northern Black Racer (*Coluber c. constrictor*) is a common and large-bodied snake in Pennsylvania, however poorly known regarding natural history, ecology, and effects on native snake communities. In 2015-2016 and from April to October, I will conduct monthly snake surveys, using cover-boards and opportunistic searches at four grassland habitats in Letterkenny Army Depot, Franklin Co., South-central Pennsylvania. I will collect natural history data, including body size and weight along with ecological data including sex ratios, reproductive status, and diet on all snakes encountered, with emphasis on *C. constrictor*. Comparing the findings in this study to research done on other *C. constrictor* subspecies in other regions of North America will highlight variations that exist within this diverse species. Assessing the impact that *C. constrictor* has on other sympatric snakes will also be important to understand the overall snake assemblage in grassland habitats in Pennsylvania.

Jason Dallas*

Faculty Sponsor: Dr. Pablo Delis
Poster Location: 42

The Prevalence of Antibiotic Resistant in Environmental Isolates

Antibiotic resistance is now a primary public health concern. Understanding the prevalence and identity of resistant microorganisms may lead to a better understanding of how to control resistant organisms associated with human disease. The purpose of this study was to determine if soil organisms demonstrate greater resistance to antibiotics than airborne isolates. Serial dilutions of soil samples were performed and plated on Trypticase Soy Agar (TSA) to recover soil bacteria. Airborne organisms were collected on TSA from Franklin Science Center using a standard air sampling technique. Biochemical tests were utilized to characterize the metabolic capabilities isolates while standardized suspensions of each isolate were used to test resistance to multiple antibiotics. DNA will be isolated from each isolate demonstrating antibiotic resistance and amplified with universal 16S rDNA primers. Resulting fragments will be sequenced to determine the identity of the organism.

Mercy Gituma

Faculty Sponsor: Dr. Marcie Lehman
Poster Location: 43



Biorhythms of Aedes aegypti (Diptera: Culicidae)

The circadian flight cycle of adult *Aedes aegypti* mosquitoes was studied with the aid of an actograph. Mosquitos were reared in 12:12 L:D or 24 D prior to being tested. Male and females were tested separately. *A. aegypti* is an important vector of human diseases such as Dengue fever, Chikungunya virus, and yellow fever. With global climate change these diseases are becoming of greater concern in North America. Thorough knowledge of vector circadian cycles is important for developing and implementing control programs.

Leah Balliet*

Faculty Sponsor: Dr. Greg Paulson
Poster Location: 44

Communication/Journalism

Advertising and Customer Buying Behavior

The study will examine the relationship between advertising and customer buying behavior. Student perceptions of the positive and negative effects of using comparative advertising and visual and verbal strategies will be analyzed. Also, this study seeks to emphasize how advertising is arguably one of the most important factors in media activity. Data collection will include a survey of Shippensburg University students, specifically students affiliated with the International Programs Office.

Nsreen Almaslmani*

Faculty Sponsor: Prof. Holly Ott
Poster Location: 47

#2016PresidentialElection

Over the last decade, American politics has witnessed an explosion of change as Web 2.0 technologies have become a norm. Specifically social media usage is a new phenomenon as witnessed in the 2008 and 2012 President Obama used various social media platforms to drive his campaigns. These rapid technological changes have forced campaigns to carry out virtual social media campaigns to target a greater number of constituents. With the 2016 Presidential election on the horizon we know that social media will be an essential tool in running a campaign. Unclear is specifically which platform will see the most use, and more importantly, how this social media usage affects an individual's perception of a Presidential candidate. My research will examine social media usage by obtaining a survey sample among Political Science students at Shippensburg University.

Casey Hedash*

Faculty Sponsor: Prof. Holly Ott

Poster Location: 48



Teleconferencing Classes' Effect on Class Participation

I will be studying if there is a difference in the amount of class participation between students taking a class through a teleconferencing system and students taking a traditionally structured class. I will also study if taking a class remotely affects the type of participation. Are these students more likely to ask questions and are they less likely to answer questions and make statements? I will send a questionnaire to Shippensburg University students who are enrolled in a distance education class through the teleconferencing system as well as students who are enrolled in other colleges who are taking a class remotely with professors at Shippensburg University.

Anna Kerstetter*

Faculty Sponsor: Prof. Holly Ott

Poster Location: 49



Is Content Really King? How Audiences Interact with Blogs and What Kinds of Content Drive User Engagement

The aphorism that "Content is King" is a hotly contested statement within the marketing world, and by proxy the larger world of business in today's radically altered digital climate. Each side claims that their argument is right. Both arguments have wormed their way through the larger conversation of how to do business or operate a nonprofit within the digital/information age. However, my research intends to frame this larger argument at a more micro level, the level of a music blog. Blogs themselves are solely reliant on original content to both grow and attract a fan-base and have to constantly rely on a fresh stream of content to keep that audience engaged. The object of my research is to illuminate how users keep engaged with content published, and more broadly, understand what types of content drive returning user engagement. In order to measure this phenomena, both Google Analytics will be used in conjunction with a questionnaire that will see if content is really king.

Jake Zeroth*

Faculty Sponsor: Prof. Holly Ott

Poster Location: 50

Computer Science

Water Quality Sensors

The Water Quality Sensor project is a collaboration between the Computer Engineering and Geography Departments to build low-cost water quality sensors. Currently, the commercially available sensors are very expensive which limits the number that can be deployed in the field. Our goal is to build sensors that will cost less than \$100 per unit, and that will improve the quality and quantity of data collected. Backed by engineering theory as well as our in-house fabrication resources, sensors can be rapidly prototyped with a similar range of features. We can accomplish this by designing boards using inexpensive off-the-shelf components with custom-produced circuit boards, and eliminating the profit interests of a corporation. The concept of rapid prototyping allows us to quickly see what ideas work and what changes could be made. Between testing types of sensors to printing 3D housings, each iteration shows strengths or weaknesses which are noted and considered for the following model.

Tyler Dalious, Tyler Garrett, Chris Jeffery

Faculty Sponsor: Dr. Tom Briggs

Poster Location: 8



FlyEye Project

The project we did our research on was the FlyEye Project. This project was an undergraduate research opportunity presented to us by the Biology Department to provide a new means to observe the activities of fruit flies, while also learning more about the research and development of microcontrollers and digital devices. When building the microcontroller, we started from scratch with a newly fabricated board and updated features to help allow for more ease of access by the user. This process required testing of multiple prototypes and added the challenge of diagnosing and fixing the problems found in the pre-existing sensor assembly, all of which took place in our own Computer Engineering Lab here at Shippensburg. The device itself works by placing fruit flies inside an enclosed tube and detecting any interruption to infrared laser beams by the flies. It then sends information of when the lasers are interrupted to a connected PC and stored for later retrieval and analysis.

Timothy Schreiber, Nick Lacroce

Faculty Sponsor: Dr. Tom Briggs

Poster Location: 6

Automatic Story Generation

With the movement towards dynamic gaming, stories need to be generated dynamically. This is accomplished using Natural Language Generation (NLG). However, these dynamic stories need to not repeat themselves or else they would bore the reader. Therefore, the research investigates if changing the amount of content and templates presented to the system changes how much the story repeats itself. To measure this effect, a story generation system was set up with 4 treatment groups, each with varying amounts of content and templates. Latent Semantic Analysis has measured the level of repetition in each treatment group to measure how much of a difference content and templates had on repetition levels. These tests together evaluate the effects of content and templates on dynamic story generation to find that while content does have a greater effect on repetition levels, having less templates decreased the repetition level when more content was present.

David Jones

Faculty Sponsor: Dr. Dudley Girard

Poster Location: 7

Counseling and College Student Personnel

Formal Leadership Development Programs: What Is It Like to Develop as a Leader?

Formal leadership development programs intentionally provide students with opportunities for immense growth within a relatively short period of time. Rather than allowing students to seek out opportunities for development on their own, these programs purposefully support and challenge their student participants into developing their leadership skills through the phenomena that they experience in their positions. This study seeks to understand the common themes among student participants in these different programs (Resident Life, Fraternity & Sorority Life, and Student Senate) at Shippensburg University in order to better create and manipulate programs in the future.

Samuel Frushour*

Faculty Sponsor: Dr. Matthew Shupp

Poster Location: 26



How Campus Support Systems Affect Engagement and Persistence in Nontraditional Women in Higher Education

The nontraditional female student is becoming a more significant portion of the ever growing higher education student population, and it is imperative that we address the gaps in the literature that prevent us from understanding how to properly serve this student population. The more prepared we become, the more likely we are to both retain and provide meaningful assistance to nontraditional women at our institutions by understanding their needs, their motivations, and the challenges facing them as they pursue higher education.

Jessica-Leigh Olan*

Faculty Sponsor: Dr. Matthew Shupp

Poster Location: 27

The Psychological Impact on Host National Students Resulting from Living with International Students in a Residence Hall: A Qualitative Study

My study will look at the psychological impact on host national students resulting from living with International students in a residence hall. This is important for several reasons: One, the only study directly related to this subject is now almost 35 years old (Marion, 1980). Secondly, this study only looked at certain aspects of the international student/host national student relationship. Lastly, and the reason why this issue was brought to my attention, is that there is hesitation among some people in higher education to house host national students with international students because of potential problems that could arise. Therefore, this study would either illuminate possible difficulties with the arrangement or alleviate those fears. This study will, therefore, give a modern basis to aid professionals making decisions in this area.

Cody Rosenbarker*

Faculty Sponsor: Dr. Matthew Shupp

Poster Location: 28

Criminal Justice

Follow Me Down the Rabbit Hole: A Content Analysis of a Substance Abuser's Personal Journal

In an attempt to understand prescription substance abuse, this research explores the utility of using an unsolicited journal to examine the addiction of a single benzodiazepine addict. Previous research employing a journal methodology is very limited, thus this study is exploratory in nature. The participant methodically documented his substance use over a four month period. He noted aspects of substance dependency, chemical make-up, intended effects, and results of consumed substances. Results concluded valuable insight into the participant's prescription substance abuse and were discussed in four themes: 1) patterns of substance abuse, 2) the start of addiction, 3) memory recall, and 4) understanding the addict. Conclusively, further research is needed on the utility of journals in examining substance abuse.

Ethan Pealer*

Faculty Sponsor: Dr. Billy Henson

Poster Location: 29



Environmental Crime in The United States: An Inquiry Into Thirty Years of Prosecution

Environmental crime is an under-examined criminal event. As such, understanding how environmental violations contribute to the broader category of white collar crime remains unclear. Using criminal enforcement case summary information compiled by the Environmental Protection Agency (EPA) for fiscal years 1983 through 2013, we examine trends related to the prosecution of environmental crimes and their outcomes in order to gain greater insight on environmental crime and the environmental criminal.

Samuel Benson

Faculty Sponsor: Dr. Cynthia Koller

Poster Location: 30

Education Leadership and Special Education

Investigation of Perceived Accessibility among Shippensburg University Students with Disabilities

This study investigated the perceived accessibility among Shippensburg University students registered with the Office of Disability. This study examined the perceived prevalence of physical and educational accessibility on Shippensburg University's campus. In addition, this study surveyed the implications that inaccessibility has on the student population, as well as the professed importance of inaccessibility on campus. This study raises awareness of accessibility strengths and weaknesses on Shippensburg University's campus.

Rikki Sargent, Kala Nelson, Ashley Bonsall-Gaffney, Sam Bega, Amanda Marfin

Faculty Sponsor: Dr. Cheryl Zaccagnini

Poster Location: 39



Investigation of Physical Accessibility on Shippensburg University's Campus

This study investigated the prevalence of physical accessibility on Shippensburg University's Campus. In particular, this study recorded the number and position of accessible and inaccessible entrances in 33 frequently used buildings on campus. This data was then transformed into a Geographic Integration System (GIS), in which consumers may easily view accessible/inaccessible entrances on campus. This study raises awareness of inaccessibility in the community, while providing support for the Social Model of Disability.

Rikki Sargent, Paul Becker, Kate Diltz, Stacey Hosfelt, William Parisi

Faculty Sponsor: Dr. Cheryl Zaccagnini

Poster Location: 40

Exercise Science

Acute Cardiorespiratory and Kinematic Adjustments Upon Early Exposure to Barefoot Running

The purpose of this study was to characterize oxygen uptake (VO₂) and kinematic adjustments during initial exposure to barefoot running (BF) and whether the adjustments persist at the onset of a second trial a minimum of 48 hours later. Eleven, moderately active subjects naïve to barefoot running completed two, 11-minute barefoot running trials on a treadmill. While becoming acclimated to BF, it was determined individuals may improve their economy by altering gait pattern as evidenced by subject-specific changes in ankle angles. These changes may reflect the transition from a rearfoot strike to a forefoot strike pattern, contributing to improved running economy.

William Bennett

Faculty Sponsors: Dr. William Braun, Dr. Sally Paulson

Poster Location: 1

Effects of Exercise Intensity on Post-Exercise Oral Glucose Tolerance Test Response

The purpose of this study was to study the effects of differing exercise intensities on glycemic control during recovery from fixed distance treadmill exercise. Seven participants performed two exercise trials, consisting of one trial of running and one trial of walking 3 miles. Participants ingested 75 g of dextrose in 300 ml of water, following completion of each trial. BG levels were significantly higher during running at post exercise and 15 minutes of recovery ($p < .01$). VO₂ ($p < .01$), heart rate ($p < .01$), and RPE ($p < .01$) for running condition were significantly higher. Significant time effects were seen in heart rate ($p < .01$) and RPE ($p < .01$). RER for the running condition was significantly higher ($p = .02$). The results suggest that when energy expenditure is controlled between low and high intensities BG tolerance between conditions is minimally affected.

James DeFrancisco, Kelsey Chattin, William Bennett

Faculty Sponsors: Dr. Sally Paulson, Dr. William Braun

Poster Location: 2



Effects of Prophylactic Ankle Taping and Bracing on Selected Kinetic Parameters during the Vertical Jump

The purpose of this study is to examine the effects of prophylactic ankle taping (PAT) and bracing (PAB) on selected lower extremity kinetics during vertical jump (VJ) performance. Eighteen volunteers completed the VJ under three conditions: standard PAT, lightweight lace-up PAB, and no treatment (CON). After a 5-min warm-up on a Monark 824E cycle ergometer in a range of 50-60 rev/min, subjects were instructed to take-off and land on a force plate. VJ displacement was measured using a Vertec. Peak force (PF) and relative impulse (IR) were calculated during the force-producing phase of the VJ. Net Impulse was approximated using Composite Simpson's Rule. Results showed statistically significant difference among the conditions for VJ height. CON was significantly higher than PAT or PAB conditions. No difference in VJ height between the PAT and PAB. No difference in PF or IR during the force-producing phase. Our conclusion is that VJ performance decreased when the ankles were taped or braced.

Doune Muller, Chris Nelson

Faculty Sponsor: Dr. Sally Paulson

Poster Location: 3

Geography/Earth Science

Investigation of Air Quality near Isla Oil Refinery, Curaçao: Mapping its Impacts on Surrounding Neighborhoods

Isla Oil Refinery (IOR) is a prominent feature in Curaçao. It is a large employer and benefits the economy. However, it also produces air and water pollution. This research focuses on the question: which communities are most impacted by IOR emissions? Weather data such as wind speed, temperature, and precipitation was collected from the weather service. Prevailing winds were used to map the cone of influence from emission towers. A scale was created to assess air quality in the field. The 0 to 5 scale was based on sensory-detected pollution, with 0 equal to no visible pollution or smell and 5 being worst case with burning eyes, headache, etc. A total of 13 stops were documented from up and down-wind areas. Data obtained show poorer air quality in socioeconomically disadvantaged neighborhoods. Air quality near the IOR is especially heavily polluted and neighborhoods such as Gasparitu are especially at risk relative to more affluent communities like Emistad.

Briana Koons

Faculty Sponsor: Dr. Sean Cornell
Poster Location: 9



Impacts of Tourism on Curaçao's Economy and Land Use

With its recent standing as the #2 most-romantic island, Curaçao is ranked amongst the world's hottest destinations, but at what cost? In order to support this status, Curaçao, its people, its infrastructure, its economy, and its government face future change. This research project will investigate the timeline for tourism development and explore how the local economy and residents are impacted. Data from Curaçao's Tourism Board show that tourism grew at a rate of 14% during the period from 2004 to 2009. Stay over tourism increased from 221,400 in 2004 to 366,800 in 2009 and tourism's contribution to GDP was estimated at 13.1% from 2009 to 2014. With recent status upgrade, significant land use changes were noted in January 2015. These include: building of new housing developments just outside Willemstad, as well as changes within the city. Demand for new homes is over-subscribed by residents and immigrants who look to take advantage of new opportunities on the island.

Austin McGinley

Faculty Sponsor: Dr. Sean Cornell
Poster Location: 10



A Soil Analysis of Greenbackville, Virginia Salt Marsh to Investigate Anthropogenic Disturbances

The salt marsh at Greenbackville, Virginia has been a primary site for anthropogenic disturbances which have altered the integrity of the marsh. An enclosed settling basin surrounded by a 3-meter high berm was created and designed to allow settling of dredge spoil to minimize turbid outflows into Chincoteague Bay. To investigate the impact of the dredge spoil on the salt marsh this research project is

focused on evaluating soil characteristics in transects across the spoil to marsh transition. Samples were tested for pH, heavy metals and nutrients. Additionally organic matter mass, and grain size analysis were conducted. Preliminary analysis shows pH is lowest in the berm and increases across the marsh, while iron and aluminum are highest in the berm and decline across the marsh. The data and analyses will be used to develop mitigation strategies to improve the impaired marsh system.

Megan Kelsall

Faculty Sponsor: Dr. Sean Cornell
Poster Location: 11



An Investigation of Energy Required for Large Boulders to be Deposited along the North West Coast of Curaçao

Along coast of North West Curaçao lie large boulders which previous studies had suggested to be emplaced by tsunamis. In contrast, it is possible that these boulders were deposited on the three meter high flat terrace by extreme wave action from storms. This hypothesis is due to observed size sorting of these limestone blocks away from the coastline. The purpose of this investigation was to quantify sorting, measure the blocks, and calculate the amount of energy required to deposit these over 3-4 m boulders. Data on boulder size and distance from shore was collected along 4 transects at Watemula and Shete Boka. Given these grain sizes, sediment transport models, Hjulstrom and Ferguson and Church, are used to calculate current velocities required to erode, transport, and deposit particles of these sizes. Calculated settling velocities required to deposit the boulders should provide concrete evidence as to whether these were emplaced by hurricane waves or tsunamis.

Megan Kelsall

Faculty Sponsor: Dr. Sean Cornell
Poster Location: 12



How does the physical geography impact the microclimates of Curaçao?

Curaçao is meteorologically complex due to the physical geography of the island and its orientation with South America and the Trade Winds. Curaçao is broken into 2 halves separated by a saddle: "Bandabou"-NW-downwind, and "Bandariba"-SE-upwind. Despite the small area, each location is impacted by meteorological events that produce microclimates controlled by rainfall, humidity, and vegetation. The project investigated the dimensions of microclimates. Meteorological factors were collected at Santa Cruz, Hato Airport, Aloe Vera Plantation and Caracasbaai. In all locations differences such as vegetation and soil types were noted. Evergreen and deciduous plants dominate the semi-arid island, yet Bandabou has a greater diversity. To date, a model has not been developed to explain observed microclimate effects, even though the geology of the region is similar. It is suggested that the massive oil refinery in the saddle impacts precipitation, but other factors are also at play.

Braden Bruning

Faculty Sponsor: Dr. Sean Cornell
Poster Location: 13

Climatic and Geologic Study of Curaçao's Lower Middle Terraces

The limestone terraces, formed during the Pleistocene, have been exposed over time as sea level has fallen. The lower middle terrace shows the boundary between the Knipp group and the limestone formation, which could be a valuable indicator of the geologic history of Curaçao. Research on the geologic history of these terraces is minimal at best. Therefore, the geologic history of Shete Boka will be investigated by looking at the stratigraphy and lithology. To do this field samples were obtained from different areas of the stratigraphic column, notes on the locations were taken, and pictures were catalogued. The samples obtained showed the Knipp group lying on top of limestone beds. This and other geologic features are clues to the depositional environment. The significance of this study is to uncover the sea level history of Curaçao bay at Shete Boka. Looking at the history of sea level rise in Curaçao provides insight into the potential of sea level change to affect islands.

Samuel Gau

Faculty Sponsor: Dr. Sean Cornell

Poster Location: 14



Investigating the Structural Geology of the Lower-Middle Terraces at Shete Boka National Park, Curaçao, The Netherlands Antilles

The island of Curaçao has a complex geologic history and has been shaped by both tectonic forces and sea level rise and fall cycles. The purpose of this project was to use field data, a DEM analysis using a GIS, and geologic maps to describe the topography and structural geology of Shete Boka (SB) National Park. This research provides insight on the formation and geologic history of the lower-middle terrace of Curaçao. The terrace reaches approximately 30 m above sea level and is 480 m from the coastline at SB. There are two rock groups that interact to form the terrace: Cretaceous Knipp Group and unique Neogene-aged limestone. The underlying Knipp was folded to near vertical orientations and fractured by tectonics prior to deposition of the horizontal limestone cap. The presence of fossilized corals, conglomerates, and cross-stratification within the limestone unit indicate that the terrace has a complex sea level history that will be considered.

Brett Gildner*

Faculty Sponsor: Dr. Sean Cornell

Poster Location: 15



Historic and Emerging Diseases of Curaçao and their Impacts

Located between Aruba and Bonaire in the Netherlands Antilles, Curaçao, with a population of ~153K residents, is an amalgam of people with different races, languages, and socioeconomic statuses. One unique characteristic of the island is from the immigration and emigration of residents, non-residents, and tourists to and from Europe, South America, and North America. However, each exchange of people introduces potential novel pathogens such as the Chikungunya virus

into Curaçao. Using in person interviews, published literature, and data collected during the Geo 450: Geography-Geology Field Study of Curaçao 2015 trip, this research will present which diseases are emerging diseases in Curaçao and their potential effect on Curaçao's cultural, socioeconomic, and human geography. This research will also provide a brief history of emerging diseases in Curaçao, elucidate geo-environmental factors and human behaviors that contribute to the propagation and prevalence of emerging diseases.

Winnie Okwaare*

Faculty Sponsor: Dr. Sean Cornell

Poster Location: 16



Projecting Future SLR on the Island of Curaçao

Sea level rise in response to catastrophic climate change will continue to rise for centuries to come. Assessing the height of sea level rise (SLR), as well as the consequences, is imperative for those who live close to the coast. This research project will focus on projecting the future change in sea level, and its implications on the island of Curaçao. The Schottegat Bay is considered to be the world's deepest natural harbor is potentially vulnerable to SLR because of the low elevation of the surrounding port terminals for the oil refinery and trade ports. In order to better assess this problem low lying areas around the island, including districts of the capital Willemstad, will be mapped and SLR projections will be overlaid. Current IPCC projections estimate a global SLR of 52-98 cm by the year 2100. Regional tide data, as well as various models of SLR, will be used to construct a model for future scenarios of sea level change under different IPCC projections.

Sean Orlando

Faculty Sponsor: Dr. Sean Cornell

Poster Location: 17



Impacts on Reef Coral Diversity in Curaçao

With a decrease in coral coverage from 52% in 1973 to 22% in 2003, reefs in Curaçao are increasingly threatened by the impacts of climate change, overfishing, pollution and ocean acidification. This study aims to establish a new site for monitoring future biodiversity assessments of a relatively protected reef in Curaçao that sees few visitors. This preliminary study serves as a baseline assessment to quantify biodiversity and % coral coverage at Marazul, a site that is actively cleaned of debris and waste by conscientious divers. A 50m-long shallow transect was set up east of the ladder at Marazul and another at the top of the wall reef at 100m offshore and a depth of 20 m. Photographs were taken every 50 cm along the transects. The photos will be analyzed and the diversity of hexacorals tabulated. Based on preliminary analysis of the data, the deeper reef has substantially higher biodiversity and has less evidence of the impact of storms and pollution.

Patrick Peck

Faculty Sponsor: Dr. Sean Cornell

Poster Location: 18

iSeismometer and Coasts of Curaçao

This research used iSeismometer iPhone app to detect ground motion from waves entering sea caves on the coastlines of Curaçao. During January 2015, the app was used at two sites: 1) Blue Room on the leeward side of Curaçao at Santa Cruz, and 2) on the windward side at Watemula. The iPhone was placed horizontally on the ground at each site. Internal motion sensors measured horizontal and vertical motions. Each reading recorded a few seconds of ground motion. Results showed that motion varied based on sampling site relative to cave center as well by windward/leeward location. Motion was captured in the X-Y planes. Primary motion was in the Z plane. Leeward motion ranged from 79-105 Hz and windward ranged from 95-179 Hz. This test was preliminary, but there is potential for use of this technology in this application. Future testing will need to focus on improving data collection methodology in order to aptly define the usefulness of personal digital seismometer apps.

Daniel Rohlfing

Faculty Sponsor: Dr. Sean Cornell

Poster Location: 19



Sea Level Rise in Willemstad

Great investment has gone into the restoration of the historic city of Willemstad. How can its infrastructure be adapted to rising sea level trends to preserve these areas? Rising sea level trends will be examined to provide practical solutions to this problem. Observations and research will be conducted to project the altitude of threatened areas during each sea level rise interval. These scenarios will be compared to current locations facing similar grades of sea level flooding. The solutions these areas have utilized will be compared to the projected standing of Willemstad over the next century. These options will be compared for benefits and drawbacks relative to cost, sustainability, and effectiveness. Regardless of the solution, action is needed soon as the historic landmarks of Willemstad pose a significant source of pride and investment for the city and its residents, and rising sea levels pose a significant threat to these areas in the near future.

Brandon Woltz

Faculty Sponsor: Dr. Sean Cornell

Poster Location: 20

Establishing a Baseline Groundwater Chemistry Database for Evaluating Future Impacts of Hydraulic Fracturing (fracking) on Groundwater Quality in Bradford County, Pennsylvania

Over the past few years, there have been serious concerns about the potential for hydraulic fracturing (fracking) to contaminate surface and groundwater sources in Pennsylvania. But the question of whether fracking has actually contaminated water sources remains unanswered due to lack of pre-drilling baseline data. This study was an attempt to collect and document baseline groundwater chemistry in Bradford County. Altogether, 30 samples were collected from domestic water wells and sent to ALS Laboratories in Middletown, PA for chemical analysis. In addition, a multi-parameter water quality probe was used at each site to conduct in-situ quality indicator assessments of the well water. The baseline data, which would soon be available on the Shippensburg University website, would provide a valuable missing link in the quest to understand the potential impacts of fracking on water quality.

Kelsey Kilhoffer*

Faculty Sponsor: Dr. Joseph Zume

Poster Location: 21



Evaluating New Urbanism's Claims at Inclusion: Examining Socio-Demographic Diversity in Selected New Urbanist Communities

As the "new" in New Urbanism wears off, there is an opportunity to test the tenets and claims that New Urbanist advocates make for their communities, including assertions of inclusion of diverse populations. This research examines three selected New Urbanist communities in comparison to the surrounding metropolitan context to evaluate these claims. American Community Survey and Decennial Census data was used to determine how well these selected communities accomplish the social diversity objectives as claimed in the Congress for the New Urbanism Charter.

Emily Grabenstein*

Faculty Sponsor: Dr. George Pomeroy

Poster Location: 24

How the Viewsheds of Pennsylvania State Parks have Changed from the Marcellus Shale Industry

The Pennsylvania state park system has been facing encroachment from this industry ever since the first wellpad was utilized in 2008. The proposed research overviews the Marcellus Shale industry in regards to encroachment on state parks in Pennsylvania. The proposed research will utilize a GIS analysis to determine landscape change associated directly from the Marcellus Shale industry. The purpose of the proposed research is to evaluate how the viewsheds (areas of vision from a given point) of selected Pennsylvania state park land has been impaired by the Marcellus Shale Industry. The results of the proposed research will show how the landscape of state parks and also state park vistas (areas that highlight spectacular views within state parks) have changed due to the Marcellus Shale industry. The results of the proposed research will help provide an idea of landscape change utilizing a GIS analysis and hopefully help to guide growth in the future.

Kyle Nicholas*

Faculty Sponsor: Dr. Janet Smith
Poster Location: 25



Rapid Flood Damage Estimation and Assessment of Urban-Stage Damage Curves in Bloomsburg, Pennsylvania

Bloomsburg, Pennsylvania has one-third of its entire land mass located within its official flood stage of 19 feet. This floodplain contains the Bloomsburg Fairgrounds, 400 homes, the Bloomsburg Industrial Park, and the Town Park. Bloomsburg has experienced four floods higher than the major flood stage of 28 feet. It is evident that flooding is a frequent and pressing issue within the town. Estimating flood damage is vital to the creation of flood policy. Traditional approaches consisted of detailed field surveys however, in recent years attempts have been made to create methodologies for rapid assessment of damage in the aftermath of a flooding event and are the basis for this research project. Stage damage curves will be created to assess flood damage. GIS will be used to simulate flood events and evaluate economic losses in correlation with depth-damage curves, created by the United States Army Corps of Engineers to assess the potential damage incurred by different flood stages.

Aaron Yoder*

Faculty Sponsor: Dr. Christopher Woltemade
Poster Location: 22

Increase of Chloride Concentrations from Road Salt Use in Burd Run, South-central Pennsylvania

This project examined the relationship between Shippensburg University road salt use and chloride concentration in Burd Run. Sodium chloride applied to campus roads is transported to Burd Run after snow and rain events, increasing the chloride concentration of the stream. Elevated chloride concentrations can impact reproductive, growth, and survival rates of aquatic organisms. This study measured specific conductivity at four sites in Burd Run. These measurements were converted to chloride concentrations, which were compared to the acute LC50 and LC10 chloride concentrations for four local aquatic species: *Salvelinus fontinalis*, *Hydropsyche betteni*, *Hydroptila angusta*, and *Gammarus pseudolimnaeus*. Preliminary specific conductivity and chloride concentration measurements ranged from 439 $\mu\text{S}/\text{cm}$ to 853 $\mu\text{S}/\text{cm}$ and 86.6 mg/L to 190.4 mg/L respectively. Spikes in Burd Run specific conductivity and chloride concentrations after snow and rain events and road salt applications were documented.

Matthew Kime*

Faculty Sponsor: Dr. Christopher Woltemade
Poster Location: 23



History/Philosophy

Frederick Watts: Agricultural Reformer

The poster will show how one man influenced agriculture in Cumberland County. Frederick Watts developed different methods of farming, designed his ideal barn, introduced new varieties of seeds to Cumberland County, and founded Penn State College. The poster will also include the controversy involved in tearing down Watts' barn as well as give background knowledge of farming in Cumberland County Pennsylvania in the 1800s and why farming was and still is relevant today.

Nicole Witmer*

Faculty Sponsor: Dr. Steven Burg
Poster Location: 31

Management/Marketing

Workplace Bullying: Effectiveness of Target Response to Workplace Bullying: Results from a National and Student Survey

We explore the concept of workplace bullying--abusive verbal or nonverbal behavior or sabotaging tactics which prevent workers from performing satisfactorily. Workplace bullying is costly as it disrupts productivity and negatively impacts employee retention and recruitment. Bullying results from a power imbalance between victims and perpetrators. Organizational cultures in which employees feel free to speak openly, question authority figures and report workplace incivility concerns are critical to reduce bullying. Training employees can help increase awareness of the issues involved. Results from national and student sample surveys on the effectiveness of various target responses are reported.

Cavet Leibensperger*

Faculty Sponsors: Dr. Wendy Becker, Dr. Joseph Catanio
Poster Location: 32

Psychology

The Effects of Computer Induced Ostracism on Prosocial Behavior in Individuals with Characteristics of Psychopathy

The current research examined the relationship between psychopathic characteristics and prosocial behavior, after being included or excluded during a ball-tossing game. It was predicted that participants with higher psychopathy scores would be less likely to engage in prosocial behavior following ostracism compared to the low psychopathy group. While there were no differences across helping behavior in the low psychopathic trait group, participants with high psychopathy scores did vary significantly in their helping behavior; however, ostracism did not affect helping.

Kylara Carbaugh, Jessica Johnson, Olivia Hunt

Faculty Sponsor: Dr. Jamonn Campbell
Poster Location: 35



Coach Influences on Daily Stressors Among NCAA Female Volleyball Athletes

The current study examined the influences that coaches have on daily stressors among NCAA (D I-III) female volleyball athletes. Coaches with higher win percentage records were related to more studying and less socializing and relaxing among Division I athletes, more academic pressure among Division II athletes, and more athletic pressure and less relaxing among Division III athletes. The results were not consistent with prior research and the findings are interpreted with a new perspective.

Rikki Sargent

Faculty Sponsor: Dr. James Griffith
Poster Location: 37

The Study of Stress Responses in Those who Have Characteristics of Narcissistic Personality Disorder

This study examined the relationship between characteristics of Narcissistic Personality Disorder and the stress response to a psychosocial stressor in a college population. The Narcissistic Personality Inventory 13 (NPI-13) was used to assess narcissistic traits and the Montreal Stress Imaging Task (MIST) was employed to induce psychosocial stress. Stress was measured by cortisol levels, which were collected from saliva samples. It was hypothesized that those high on narcissistic traits would show a greater stress response than those lower on such traits. The hypothesis was not supported; the results suggest that the students who scored high on the NPI-13 did not differ in their stress responses in comparison to the low scoring individuals.

Jessica Johnson, Nicole Nicholson, Dainen Green

Faculty Sponsor: Dr. Robert Hale
Poster Location: 33



Adolescent Perceptions on the Impact of Growing Up with a Parent with a Disability

Over the years a significant amount of research has been conducted on the effects disabilities have on parents, however, there has not been much research conducted on the subject-matter from the perspective of the child. The focus of this study is to investigate and the overarching themes expressed by individuals who grew up with a parent(s) with a disability(s). Participants in this study were reported that they had increased independence and overall responsibilities to the family.

Kala Nelson, Nicholas Corbo-Cruz

Faculty Sponsor: Dr. Sue Morin
Poster Location: 38



The Effect of Equine Therapy on Communication and Motor Skills in Children with Autism

These case studies explored the relationship between therapeutic horseback riding and behavior change in two children with autism. As children participated in six weekly sessions of therapeutic riding, changes were tracked using the Childhood Autism Rating Scale (CARS) and the Vineland Adaptive Behavior Scale (VABS). After six weeks of therapeutic riding, both children showed improvements in the VABS with regard to communication and motor skill development, and parents reported generalizations from the riding lessons into their child's home life.

Nicole Nicholson, Jessica Johnson

Faculty Sponsor: Dr. Kathryn Potoczak
Poster Location: 34

*Peer Competence as a Mediator
of the Link between Attachment
Security and Friendship Quality*

This study examined peer competence as a mediator of the link between attachment security and friendship quality. Bivariate correlations showed that the study variables were associated in the expected direction, and thus mediation could be investigated. Peer competence was found to partially mediate the link between attachment security and friendship quality.

Rikki Sargent

Faculty Sponsor: Dr. Ashley Seibert

Poster Location: 36



*Reduction in Hospitalization Following Peer
Support Services for Serious Mental Illness*

This study assessed whether receipt of Peer Support Services (PSS) at a rural mental health association was associated with reduced hospitalizations. A one tailed t-test indicated a statistically significant reduction in hospitalizations following participation in PSS among individuals with fewer than 10 prior hospitalizations, with 61.5% having no hospitalizations after the receipt of PSS.

Kailey Mellott, Chelsea Kszanznak, Christopher Sims*

Faculty Sponsor: Dr. Kim Weikel

Poster Location: 41

Social Work/Gerontology

*Arrested Development: A Study of United
States Social Work Students' Understanding
of the Social Development Model*

Many social workers in the United States of America do not think about, or are not aware of, the underlying philosophies that influence the way they do their work. Due to differences in national policy and educational practices, this lack of awareness may be more pronounced among American social workers than among social workers in the developing world. Social work students at Shippensburg University looked at undergraduate social work students' understanding and awareness of three different social work theories practiced in the United States and other countries. Those models are as follows: the residual model, the institutional model, and the social development model. The purpose of the project is to measure the knowledge about and opinions of these social work practice philosophies in undergraduate social work students and social work professors in the United States.

Kayla Fyfe, Kathleen Prest, Jerome Williams

Faculty Sponsors: Dr. Michael Lyman, Dr. Jayleen Galarza

Poster Location: 5

Teacher Education

*Teachers' Views about the Use of
Stability Balls in the Classroom*

There are very few students who use Stability Balls in regular classrooms. Most studies have been done in relation to special needs children or situations. A few studies show that stability balls improve children's ability to focus when compared with hard chairs. In an effort to ascertain the positive results classroom teachers are experiencing, this study examined Pk-4 teachers' views regarding the use of stability balls in the classroom.

Heather Cheam*

Faculty Sponsor: Dr. Eucabeth Odhiambo

Poster Location: 45



*Second Graders' Views about
Sitting on Stability Balls*

There are very few students who use Stability Balls in regular classrooms. Most studies have been done in relation to children with special needs. A few studies show that stability balls improve children's ability to focus when compared with hard chairs. In an effort to ascertain the positive results classroom teachers are experiencing, this study examined the views and experiences of regular education children regarding the use of stability balls. A total of 25 students in a 2nd grade classroom were involved in this study.

Jessica Hathaway*, Anna Rider, Julia Jones*

Faculty Sponsor: Dr. Eucabeth Odhiambo

Poster Location: 46

INDEX

A

Abubakar, Safiya 7, 11
Almaslmani, Nsreen 40
Armen, Dr. Brad 6, 25, 28
Armstrong, Dr. Alice 5, 18
Atwell, Matthew 14
Augustine, Brandon 6, 33
Aull, Alaynie 29

B

Babashan, Kelly 6, 28
Bailey, Dr. Lonca 21
Balliet, Leah 40
Baltimore, Rodney 15
Baluta, Marni 30
Barfield, Angel 6
Barnes, Amanda 10
Barrett, Brandon 6, 12
Bartle, Sarah 7, 11, 33
Barton, Amanda 32
Baynum, Dr. Lynn 20
Bealing, Dr. William 18
Becker, Dr. Wendy 5, 18, 48
Beckerleg, Samantha 13
Becker, Paul 43
Bega, Sam 43
Benner, Natalie 16
Bennet, Tara 14
Bennett, William 6, 43
Benson, Samuel 6, 42
Bergsten, Dr. Sherri 7, 10
Berstecher, Joshua 14
Bertram, Dr. Corrine 5
Betz, Kathryn 32
Binczak, Laura 13
Blewett, Briana 15
Bonsall-Gaffney, Ashley 43
Botteron, Dr. Cynthia 16

Bouhmam, Houda 6
Bowman, Daniel 13
Boykin, Lindsay 30
Braun, Dr. William (Turi) 5, 13, 32, 33, 43
Breedon, Carrie 13
Brennan, Theodore 15
Briggs, Dr. Tom 41
Brockman, Morgan 32
Brooks, Chad 14
Brooks, Nyelle 14
Brouse, Mckenzie 14
Bruning, Braden 44
Bryant, Dr. Sarah 5
Bryson, Gina 12
Bucher, Pamela 5, 6
Burg, Dr. Steven 25, 47
Burkett, Katherine 12
Burkhart, Lauren 35
Butler, Mary 6

C

Calambas, Dave 14
Campbell, Dr. Jamonn 48
Carbaugh, Kylara 6, 48
Carden, Natalia 14
Carlin, Jennifer 18
Catania, Dr. Joseph 18, 48
Cella, Dr. Laurie 5, 13, 21
Cesarz, Dominic 6
Chattin, Kelsey 6, 13, 43
Cheam, Heather 49
Cheesman, Jackelyn 13
Cini, Victoria 15
Clelland, Paul 34
Coffey, Josh 34
Coghill, Shelby 20
Collette, Robyn 6, 37
Collins, Kelsea 15
Connelly, Cody 15

Connelly, Prof. Neil 5, 13, 24
Connor, James 16
Corbo-Cruz, Nicholas 48
Cornell, Dr. Sean 44, 45, 46
Cowden, Laura 28, 30
Cox, Serena 6, 32
Cressler, Collin 14
Crochunis, Dr. Thomas 5

D

Dagnes, Dr. Alison 21, 37
Dalious, Tyler 6, 41
Dallas, Jason 7, 40
Daly, Connor 6, 30
Dankulich, Brian 31
Davidson, Jacob 15, 16
Davidson, Jay 6, 12
Davis, William 15
Day, Heather 16
DeFrancisco, James 6, 43
Delis, Dr. Pablo 11, 24, 28, 40
Denison, Dr. Barbara 7
Destafano, Kate 6, 10
Dickson, John 14
Dieterich-Ward, Dr. Allen 5
Diltz, Kate 6, 43
Dively, Caleb 14
Donohoe, Philip 31
Donovan, Michael 6
Dougherty, Erin 35
Dovales, Raquel 32
Dubelle, Jonathan 12
Duelley, Brandon 18

E

Eastwood, Natalie 13
 Egelman, Matthew 24
 Elliott, Dr. Lucinda 5, 10
 Ensley, Dr. Douglas 35

F

Feeney, Dr. Alison 5
 Feeney, Dr. Thomas 33
 Fenby, Mollie 13
 Fic, Christy 5
 Finnegan, Fallon 15
 Finucane, Dr. Brendan P. 4
 Flagler, Dr. Marita 12
 Flood, Greg 11
 Fogg, Jesse 15
 Foster, Nathaniel 31
 Fox, Connor 18
 Frank, Mark 13
 Frey, Kaitlyn 6, 29
 Frick, Cody 7
 Frielle, Dr. Thomas 5, 12, 19
 Frushour, Samuel 42
 Fyfe, Kayla 6, 49

G

Galarza, Dr. Jayleen 49
 Galella, Joseph 7
 Galluzzo, Dr. Ben 5, 20, 35, 36
 Garrett, Blair 13
 Garrett, Tyler 6, 41
 Gaston, Yaneshia 13
 Gaumer, Shannon 12
 Gau, Samuel 45
 Gildner, Brett 7, 45
 Girard, Dr. Dudley 42
 Gituma, Mercy 6, 15, 40
 Goates, Dr. Nathan 35
 Godshall, Melina 21

Goetz, Kristopher 7, 11
 Grabenstein, Emily 46
 Grace, Faythe 25
 Grayer, Shanice 13
 Greenberg, Dr. Michael 21
 Greenberg, Hannah 6, 19, 30
 Green, Dainen 48
 Griffith, Dr. James 48
 Grove, Dr. Sara 21
 Guenther, Ana 13

H

Haase, Dr. Steven 5
 Haines, Spencer 14
 Hale, Dr. Robert 21, 48
 Hamilton, Iiesha 13
 Han, John 6, 10
 Harding, Jessica 6, 13
 Hargrove, Dr. M. Blake 6, 35
 Harpster, Dr. Jody 2
 Harris, Andrew 16
 Harrow, Dr. Sharon 32
 Hathaway, Jessica 49
 Hawkins, Dr. Timothy 33
 Hay, Alyssa 6, 28
 Hedash, Casey 41
 Helfrick, Alicia 10
 Henson, Dr. Billy 42
 Hillard, Alexis 15
 Hill, Daniel 35
 Hippensteel, Caitlin 25
 Hoffman, Matthew 6, 24
 Hosfelt, Stacey 43
 House, Alyssa 32
 Howell, Jarrell 15
 Hunt, Olivia 6, 20, 48
 Hutchinson, Andrew 36
 Hutton, Caitlin 6

I

Innerst, Grant 6, 20
 Irwin, John 31
 Isbel, Emily 13

J

Jarboe, Jillian 34
 Jeffery, Chris 6, 41
 Jendrzewski, Nathan 6, 33
 John, Lara 6
 Johnson, Dr. James 3
 Johnson, Dr. Karen 5, 40
 Johnson, Emmaline 15, 16
 Johnson, Jessica 6, 48
 Johnson, Leah 14
 Jones, David 42
 Jones, Julia 49
 Jones, Michelle 12
 Jurnack, Kevin 6

K

Kauffman, Lucinda 6, 19
 Keating, Emily 35
 Kegerreis, Dr. Jeb 6, 12, 19
 Kelsall, Megan 6, 44
 Keppel, Brandi 29
 Kerstetter, Anna 41
 Kilhoffer, Kelsey 7, 46
 Kim, Dream 6
 Kime, Matthew 47
 King, Lauryn 10
 Klein, Dr. Kim 6, 18, 19, 20
 Knight, Dr. Misty 5, 14
 Knight, Dr. Richard 15
 Knotts, Stephanie 6, 10
 Koenig, Nicole 6
 Koller, Dr. Cynthia 5, 42
 Koons, Briana 44
 Kooti, Dr. John G. 4

Kostik, Alex 7
 Kramer, Dr. Emily 10
 Ksanznak, Chelsea 6, 49
 Kuder, Mike 14
 Kush, Thaddeus 15

L

Lacroce, Nick 41
 Lacy, Dr. Jeffery 12
 Lafaw, Jeremy 15
 Lagerholm, Steven 13
 Lamp, Curtis 35
 Landis, Sara 6
 Lane, Dr. Charlene 5, 6
 Lang, Dr. Eveline 5
 Laskowski, Dr. Kara 15
 Laubach, Jason 13
 Lauffer, Reece 14
 Laukaitis, Hanna 29
 Lawrence, Alesia 13
 Lazarski, Kathleen 6, 21
 Lee, Dr. Jeonghwa 5, 24
 Lehman, Dr. Marcie 19, 28, 29, 40
 Leibensperger, Cavet 48
 Lesman, Dr. Robert 5, 20
 Levin, Janna vi
 Levitsky, Josh 6, 10
 Light, Dr. Theo 10
 Lightner, Thomas 6, 12
 Lindsay, Katherine 6
 Littlejohn, Chris 35
 Long, Mary 36
 Long, Sara 20, 32
 Lowe, Josh 6
 Luckenbach, Katya 10
 Lyman, Barbara G. 2
 Lyman, Dr. Michael 49

M

Mack, Kellyann 15
 MacWilliams, Paige 6
 Madey, Dr. Scott 7
 Manning, Alex 6, 10
 Maret, Dr. Tim 11
 Marshall, Dr. Michael 29
 Martin, Amanda 14, 43
 Martin, Kelsey 6
 Masland, Virginia 6, 10
 Mason, Taylor 6, 25
 Massetti, Nicholas 15
 Mathes, Rebekah 15
 Mayer, Sheldon 15
 McCann, Dr. Robin 12, 30
 McCleaf, Miranda 7, 11
 McClellan, Katie 6
 McClure, Nicholas 21
 McGee, Megan 13
 McGinley, Austin 44
 McGuire, Christopher 7, 24
 McKnight, Aaron 6, 10
 Mease, Alicia 6, 32
 Mellott, Kailey 6, 49
 Mengle, Kelsey 6, 12, 19
 Merchant, Brijesh 15
 Metts, Rebecca 6
 Mike, Dr. James 3
 Miller, Kira 13
 Miller, Tierney 6, 12, 19
 Miller, Trey 33
 Mills, Aaron 7, 10
 Mitaut, Dr. Blandine 5, 36
 Moll, Dr. Kirk 5
 Moore, Alex 34
 Moore, Julia 6, 10
 Moore, Rebecca 12
 Moran, Stacey 12

Morin, Dr. Sue 48
 Morrow, Heather 15
 Moyer, Ashley 7
 Moyer-Keehn, Madelyn 6, 24
 Muller, Douwne 6, 43
 Munyao, Elizabeth 15
 Musser, Diane 6

N

Nelson, Chris 43
 Nelson, Kala 6, 43, 48
 Nelson, Samantha 36
 Newcomer, Devon 6, 25
 Newmaster, Kyra 6, 10
 Nicholas, Kyle 47
 Nichols, Janessa 6
 Nicholson, Nicole 6, 21, 48
 Novak, Eric 6, 37

O

Odhiambo, Dr. Eucabeth 49
 Okwaare, Winnie 45
 Olan, Jessica-Leigh 42
 Olson, Cody 32
 Onyskiw, Jillian 6, 28
 Orlando, Sean 45
 Orner, Rebecca 13
 Ott, Prof. Holly 5, 24, 30, 31, 40, 41

P

Parisi, William 43
 Park, Andrew 35
 Parks, Alexandra 32
 Paterson, Mary 15
 Patrick, Jeremie 14
 Patrie, Dr. William 10
 Patterson, Dr. Britt 6, 18
 Paulson, Dr. Greg 6, 29, 40
 Paulson, Dr. Sally 20, 32, 33, 43

Paxton, Kelsie 15
 Pealer, Ethan 42
 Peck, Patrick 45
 Petro, Kiley 18
 Phillips, Zachary 7
 Pierce, Dr. Gretchen 5, 15, 21
 Pomeroy, Dr. George 6, 34, 46
 Poorbaugh, Alyson 6
 Potoczak, Dr. Kathryn 5, 6, 48
 Predecki, Dr. Allison 12, 19
 Predecki, Dr. Dan 29
 Prest, Kathleen 49
 Prettner, Selina 6, 12
 Price, Zackory 6, 33

R

Ragone, Dr. Agnes 15
 Ramos, Evan 13
 Ramsey, Dr. Matthew 14, 15
 Rauchut, Jessica 6, 10
 Reese, Emily 6, 10
 Renault, Dr. Marc 5
 Rensch, Heather 6, 12, 19
 Rep, Vladimir 6, 28
 Rhoads, Aaron 13
 Richardson, Dr. John 12, 19
 Rickard, Anna 6, 28
 Rider, Anna 49
 Riley, SaraBeth 6, 30
 Rimbey, Samantha 33, 34
 Rim, Dr. Hong 14
 Ritts, Matthew 6, 29
 Robbins, Lisa 14
 Robinson, Dr. Russell 6, 20
 Rohlfing, Daniel 46
 Rosenbarker, Cody 42

S

Sahli, Dr. Heather 10, 28, 30
 Saintz, Julia 21
 Sanders, Dr. Joohee 5, 32
 Sanger, Amanda 13, 21
 Santalucia, Dr. Nicole 13
 Sargent, Rikki 6, 43, 48, 49
 Sato, Dr. Toru 20
 Scheer, Peter 40
 Schmuck, Heather 6, 32
 Schneps, Connor 6, 10
 Schoolcraft, Tracy A. 3
 Schreiber, Timothy 41
 Schulz, Jonathan 6, 10
 Schwarz, Amanda 6, 20
 Schwilk, Dr. Christopher 7
 Scமாக, Chelsea 14
 Segner, Amanda 15
 Seibert-Drager, Carolyn 31
 Seibert, Dr. Ashley 5, 49
 Seils, Carl 6, 33
 Senecal, Dr. Christine 6, 14, 20, 21, 34, 35
 Setaputra, Dr. Robert 7
 Seyler, Ashley 36
 Shaffer, Rachel 14
 Shane, Dr. Joseph 19
 Sharrow, Timothy 14
 Shaughnessy, Marissa 15
 Shawver, Zared 7
 Shenk, Ben 14
 Shirey, Kathryn 25
 Shirk, Dr. Kathryn 24, 28, 37
 Shissler, Elias 5, 6, 10
 Shupp, Dr. Matthew 42
 Siahaan, Dr. Freddy 31
 Sims, Christopher 49
 Sipes, Dr. Carrie 5
 Skarlatos, Spero 6, 29

Slattery, Dr. Cheryl 20
 Slotter, Ariel 7, 40
 Smith, Ben 6, 33
 Smith, Christen 6
 Smith, Dr. Janet 34, 47
 Smith, Marie 14
 Snyder, Jordan 13
 Spangler, Ryan 6, 10
 Sparks, Michael 15
 Spicka, Dr. Mark 35
 Stachel, Shelby 6, 35
 Stanbury, Zach 13
 Stasyszyn, Kelsey 18
 Steinbacher, Melvina 7, 37
 Stevens, Cory 13
 Stewart, Dr. Richard 10, 11, 19
 Stewart, Megan 15
 Stoner, Emilee 6
 Stouffer, Ali 6
 Strickland, Jessica 15
 Stroughair, Nicholas Bilchak 6, 35
 Stuck, Ashley 6, 20
 Sumner, Sarah 6, 10
 Sylte, Shannon 34

T

Thomas, Dr. Nathan 5, 11
 Thomas, Hillary 13
 Thomas, Michael 15
 Todora, Joe 6, 33
 Torzillo, Joshua 13
 Travis, Jordan 6, 30

U

Ulrich, Dr. Brian 5

Unger, Jordan 6, 24, 25, 28

Updike, Josh 6

Usher, Timothy 13

V

Vellucci, Ashley 6

W

Wagner, Kera 30

Wallace, Kim 6, 13

Walls, Victoria 6

Ward, Colin 14

Watford, Colin 6

Watts, Dr. Allison 15

Weidman, Ethan 31

Weidner, Jessica 7, 40

Weigle, Harley 6

Weikel, Dr. Kim 20, 49

Weiser, Brandon 35

Wells, Patrick 36

Welsh, Matthew 35

Wenerd, Lauren 6, 20

Wentz, Dr. Brian 5

Whitehead, Austin 15

Wildermuth, Dr. David 24

Williams, Adrienne 7, 40

Williams, Jerome 49

Wilson, Robert 13

Winebark, Samantha 6, 29

Winter, Heather 6, 12

Winters, Sasha 12

Witmer, Nicole 47

Woltemade, Dr. Christopher 47

Woltz, Brandon 46

Wonders, Christopher 5, 6, 7

Wozniak, Christopher 14

Wright, James 13

Wright, Joshua 28

Wright, Justin 25

Y

Yoder, Aaron 47

Young, Emily 7

Z

Zaccagnini, Dr. Cheryl 5, 43

Zaleski, Dr. Curtis 5, 30

Zebekow, Melissa 6, 29

Zeroth, Jake 41

Zume, Dr. Joseph 46

Shippensburg University of Pennsylvania, in compliance with federal and state laws and university policy, is committed to human understanding and provides equal educational, employment, and economic opportunities for all persons without regard to age, color, national origin, race, religion, disability, veteran status, sex, sexual orientation, or gender identity. Direct requests for disability accommodations and other inquiries to the Office of Disability Services, Horton Hall Suite 324, Shippensburg University, 1871 Old Main Drive, Shippensburg, PA 17257-2299, (717) 477-1329, ods@ship.edu.



SHIPPENSBURG UNIVERSITY

A member of Pennsylvania's
State System of Higher Education

1871 Old Main Drive
Shippensburg, PA 17257-2299
717-477-7447
www.ship.edu